

FIG. 1

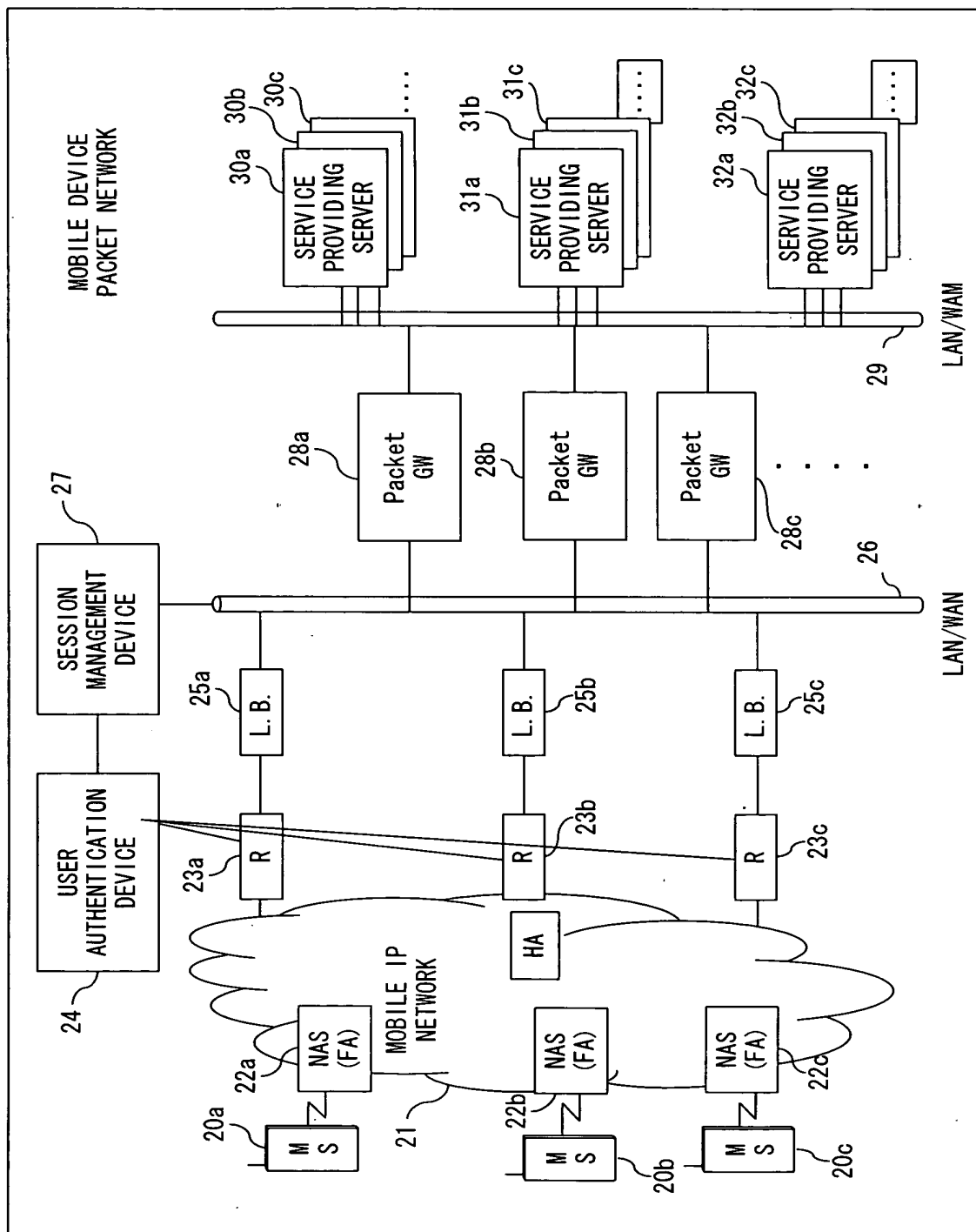


FIG. 2

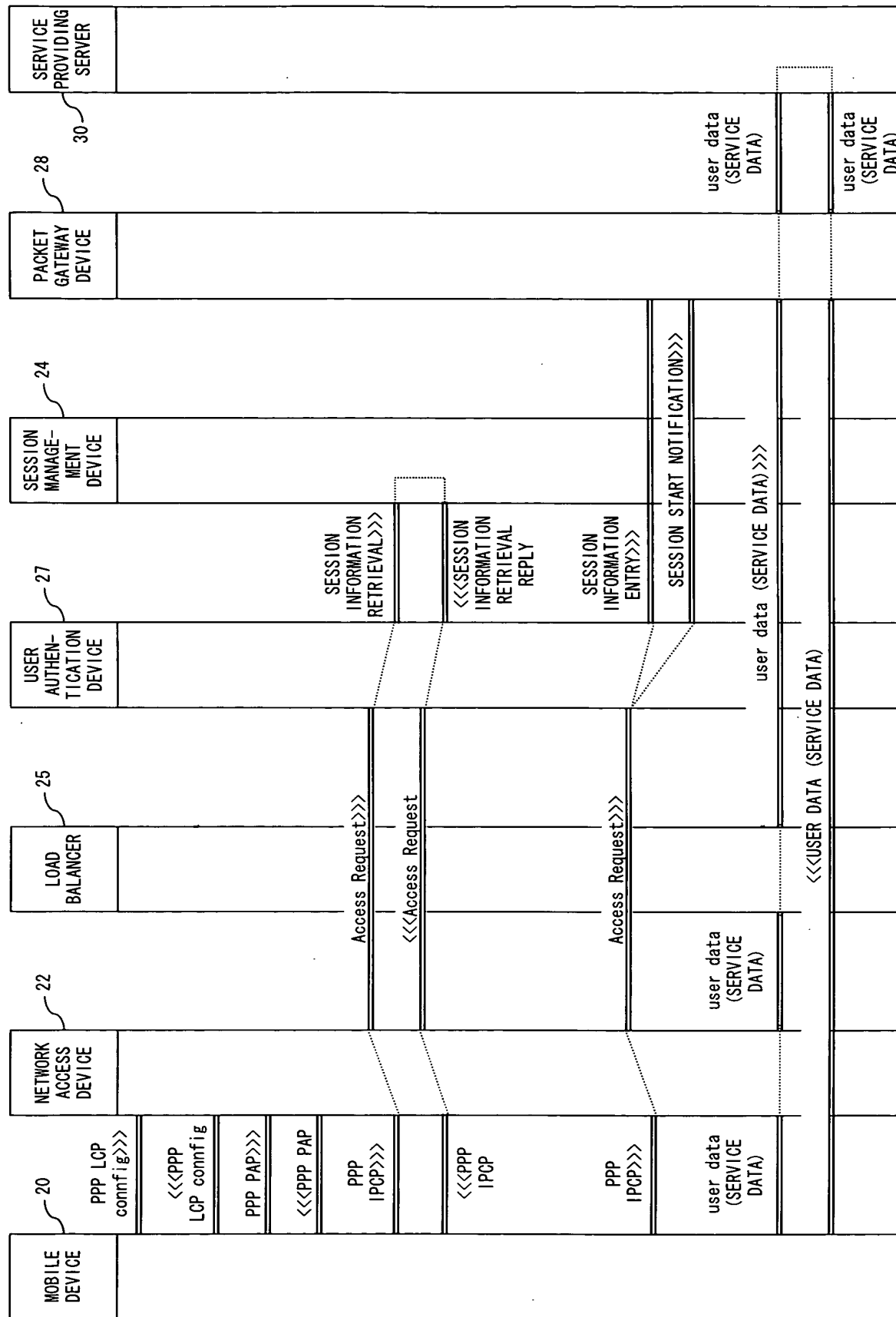


FIG. 3

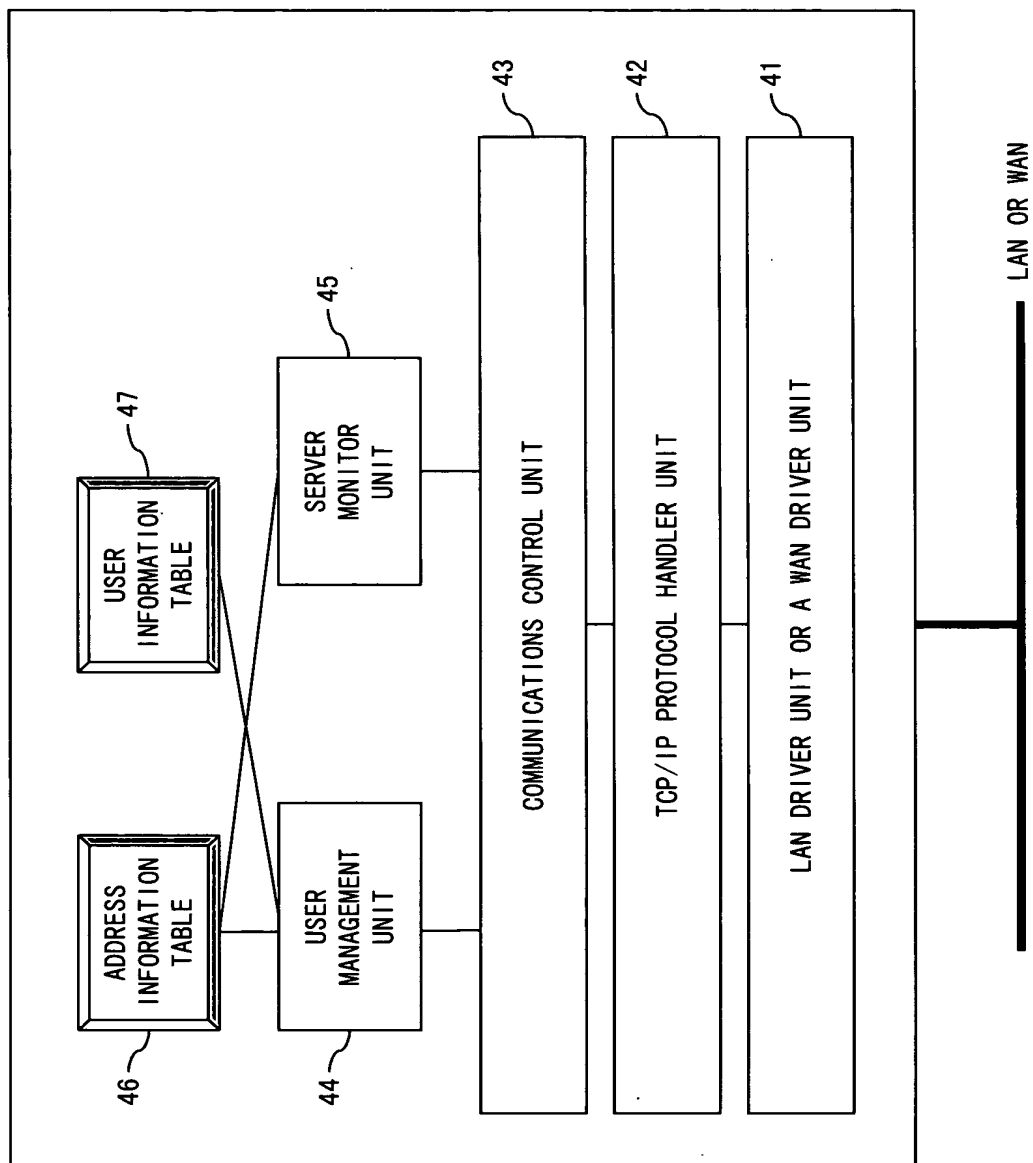


FIG. 4

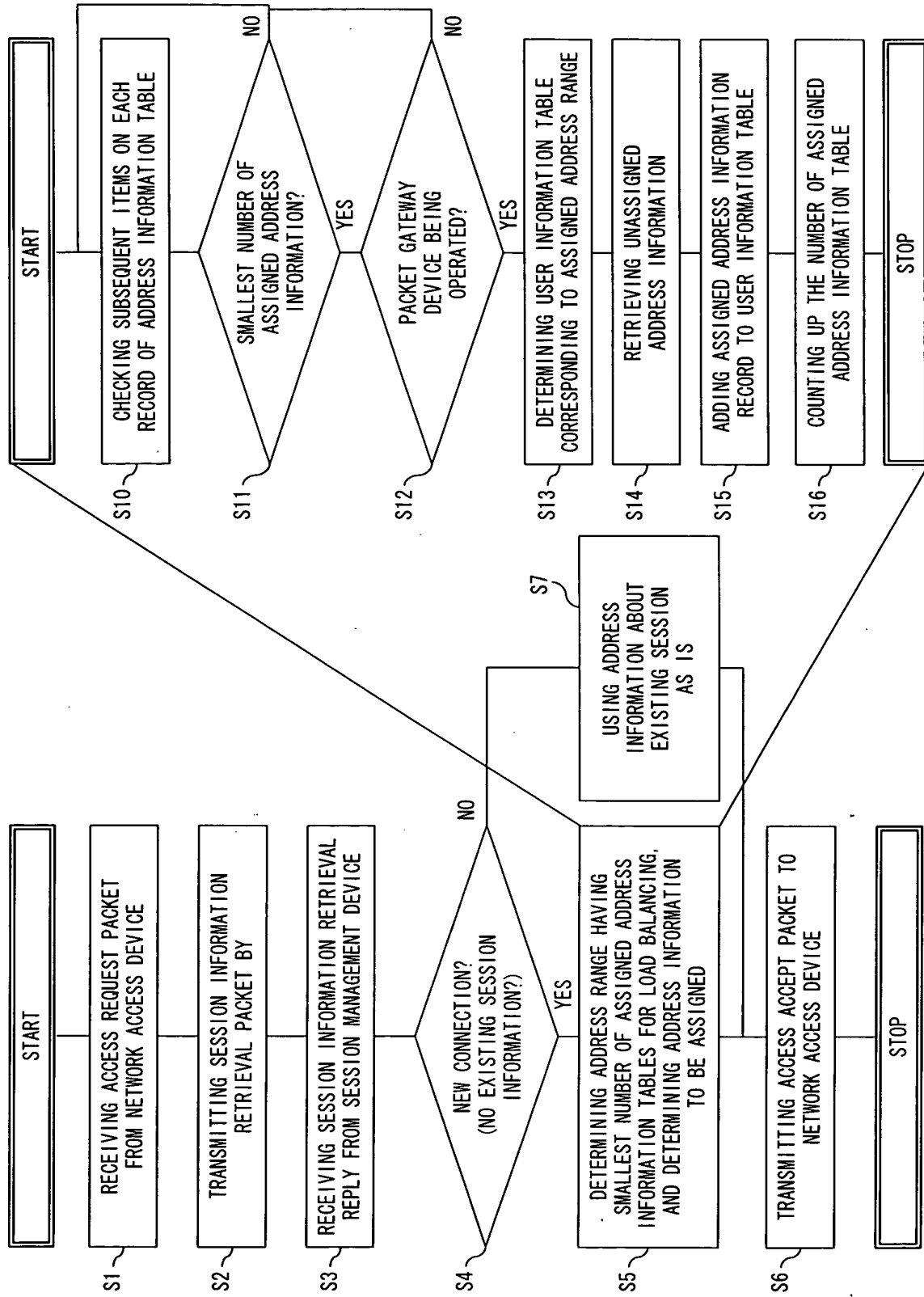


FIG. 5

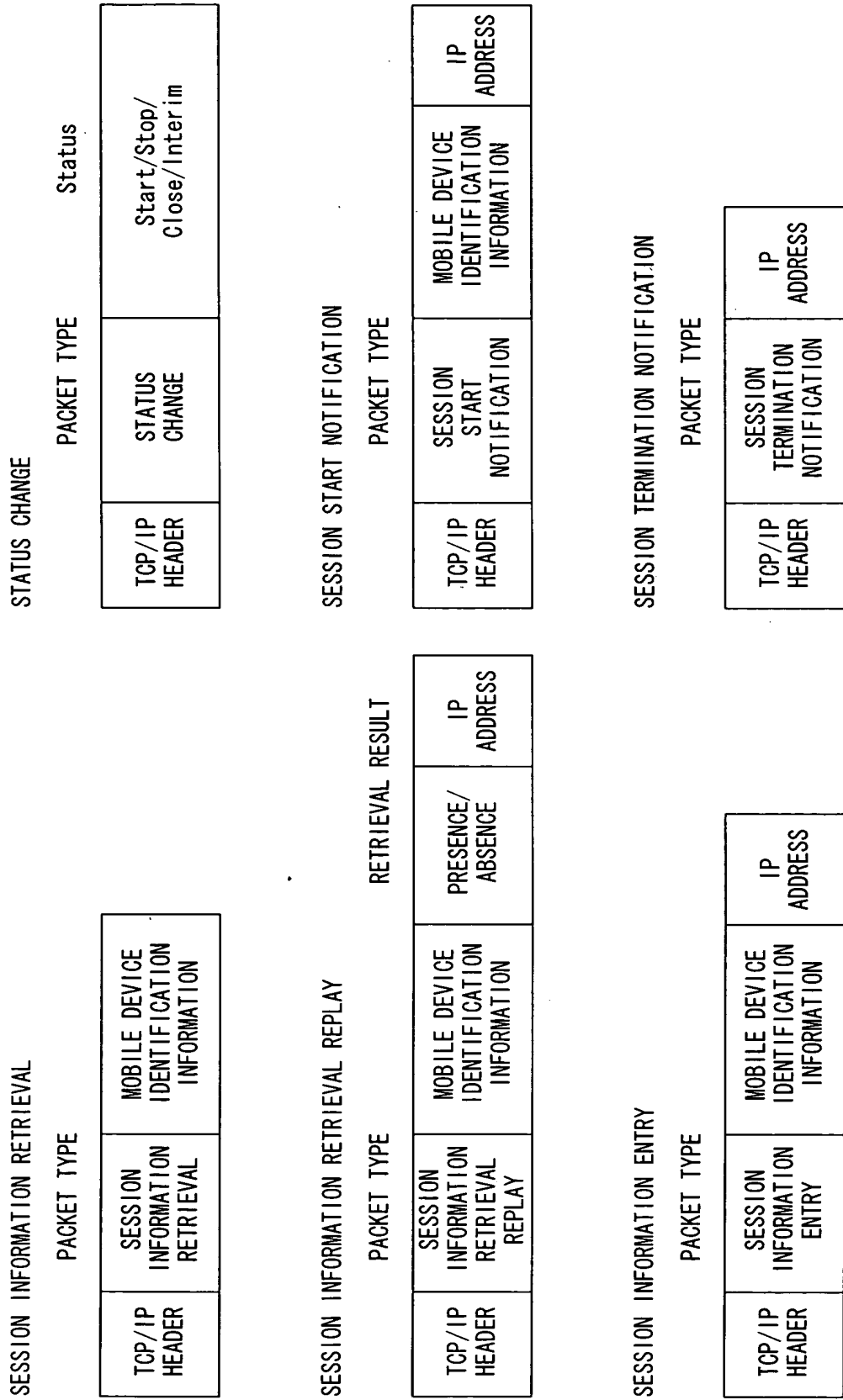


FIG. 6

| PACKET GATEWAY DEVICE | PACKET ASSIGNMENT RANGE | | NUMBER OF ASSIGNED IP ADDRESSES | OPERATING STATUS OF PACKET GATEWAY DEVICE | USER INFORMATION TABLE ADDRESS |
|--------------------------|-------------------------|---------------|------------------------------------|--|-----------------------------------|
| Pgw1 | 10. 0. 0. 1 | 10. 32. 0. 1 | 20 | OPERATING | * |
| Pgw2 | 10. 32. 0. 1 | 10. 64. 0. 1 | 20 | OPERATING | * |
| Pgw3 | 10. 64. 0. 1 | 10. 96. 0. 1 | 20 | OPERATING | * |
| Pgw4 | 10. 96. 0. 1 | 10. 128. 0. 1 | 19 | OPERATING | * |

FIG. 7

| USER IDENTIFICATION INFORMATION | | | | ASSIGNED IP ADDRESS INFORMATION |
|---------------------------------|-----------|--|--------------|---------------------------------|
| USER IDENTIFIER | PASSWORD | MOBILE DEVICE IDENTIFICATION INFORMATION | PHONE NUMBER | IP ADDRESS |
| E0658 | E0658aaaa | F50200001 | 9077771111 | 10. 32. 0. 1 |
| E0668 | E0668aaaa | F50200002 | 9077771112 | 10. 32. 0. 2 |
| E0678 | E0678aaaa | F50200003 | 9077771113 | 10. 32. 0. 3 |
| E0688 | E0688aaaa | F50200004 | 9077771114 | 10. 32. 0. 4 |

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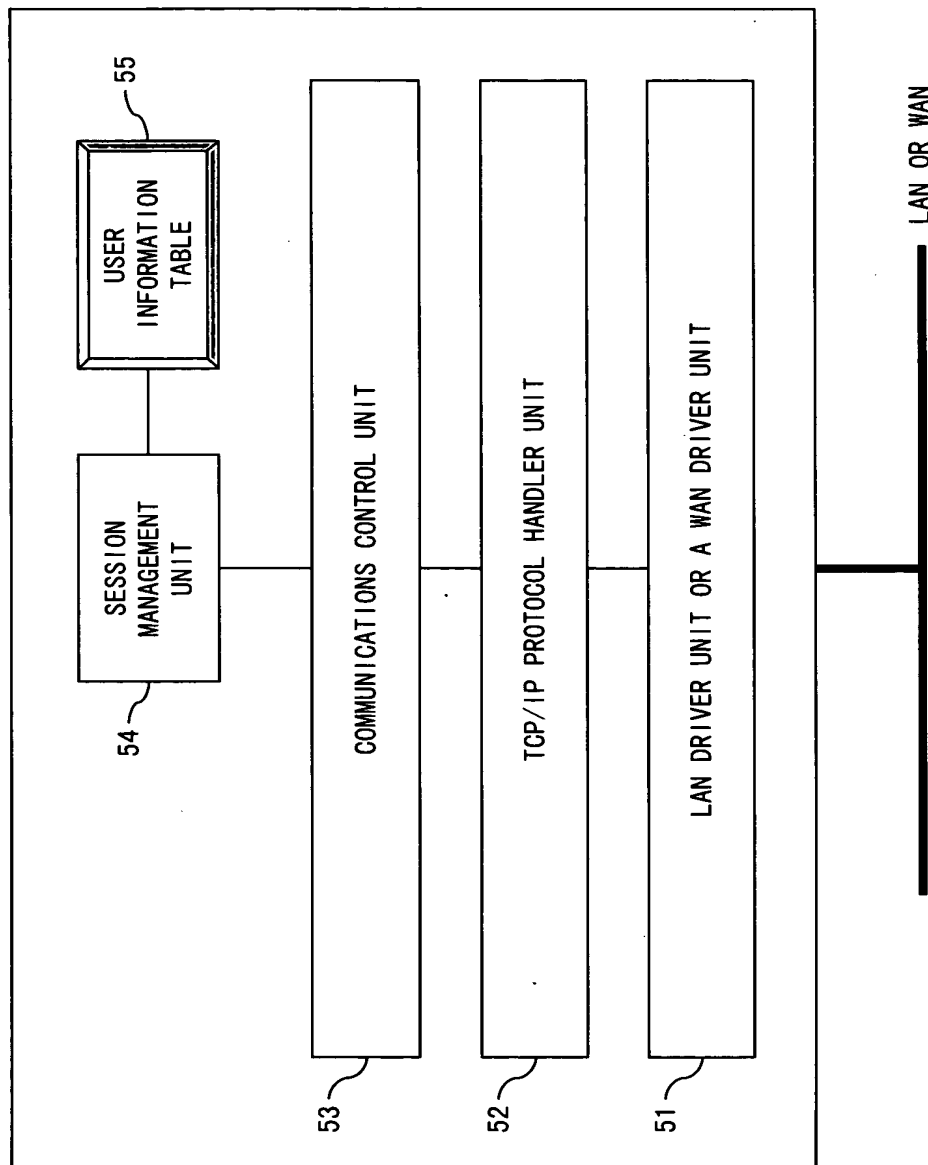
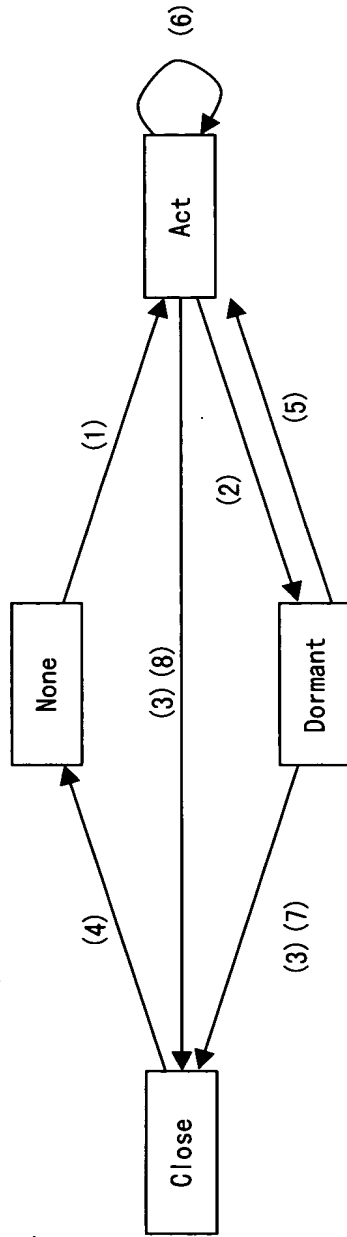


FIG. 9

| SESSION IDENTIFICATION INFORMATION | MOBILE DEVICE IDENTIFICATION INFORMATION | ASSIGNED IP ADDRESS INFORMATION | SESSION STATE |
|--|--|---------------------------------------|---------------|
| | | IP ADDRESS | |
| 10010001 | F50200001 | 10. 32. 0. 1 | Act |
| 10010002 | F50200002 | 10. 32. 0. 2 | Act |
| 10010003 | F50200003 | 10. 32. 0. 3 | Act |
| 10010004 | F50200004 | 10. 32. 0. 4 | Act |

FIG. 10



| NUMBER | STATE TRANSITION TRIGGER |
|--------|---|
| (1) | SESSION INFORMATION ENTRY FROM USER AUTHENTICATION DEVICE |
| (2) | STATUS CHANGE (STOP) FROM USER AUTHENTICATION DEVICE |
| (3) | STATUS CHANGE (CLOSE) FROM USER AUTHENTICATION DEVICE |
| (4) | SESSION LOG OUTPUT |
| (5) | STATUS CHANGE (START) FROM USER AUTHENTICATION DEVICE |
| (6) | STATUS CHANGE (INTERIM) FROM USER AUTHENTICATION DEVICE |
| (7) | SESSION TIMER TIMEOUT |
| (8) | INTERIM MONITOR TIMER TIMEOUT |

FIG. 11

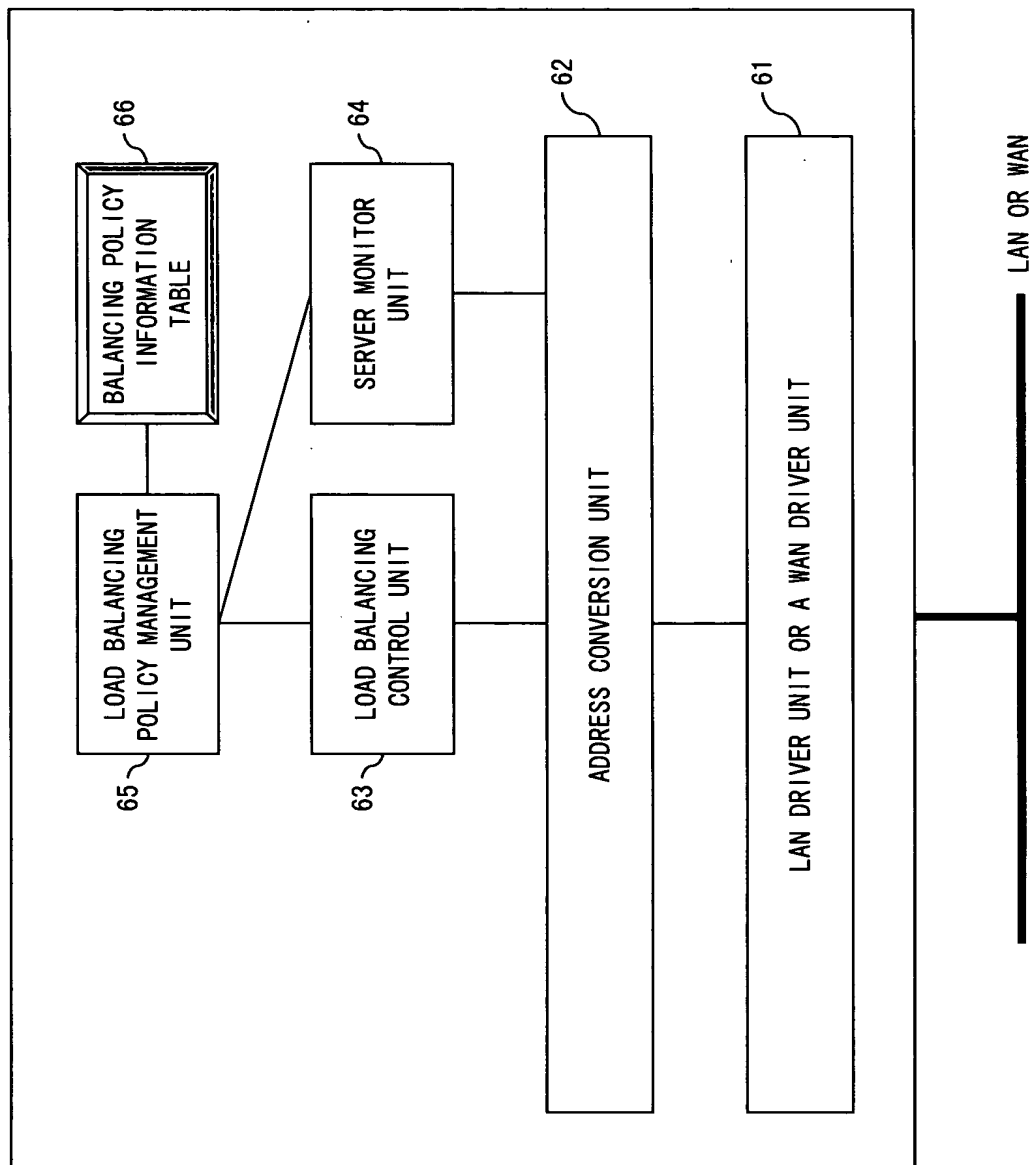


FIG. 12

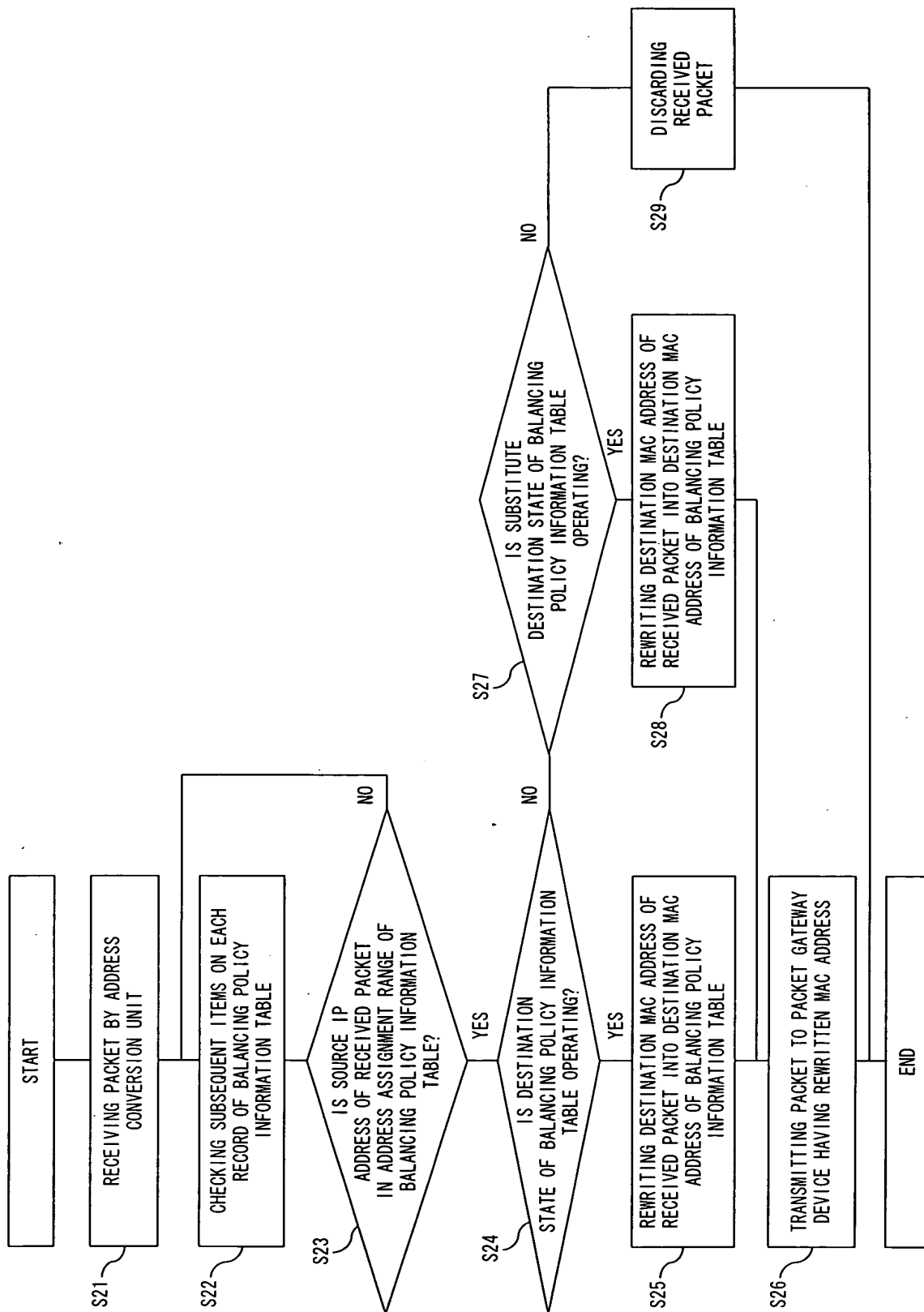


FIG. 13

| IP ADDRESS ASSIGNMENT RANGE | | DESTINATION MAC ADDRESS | DESTINATION STATE | SUBSTITUTE DESTINATION MAC ADDRESS 1 | DESTINATION STATE |
|-----------------------------|---------------|----------------------------|----------------------|--|----------------------|
| 10. 0. 0. 1 | 10. 32. 0. 0 | MAC5 | NORMAL | MAC6 | NORMAL |
| 10. 32. 0. 1 | 10. 64. 0. 0 | MAC6 | NORMAL | MAC5 | NORMAL |
| 10. 64. 0. 1 | 10. 96. 0. 0 | MAC5 | NORMAL | MAC6 | NORMAL |
| 10. 96. 0. 1 | 10. 128. 0. 0 | MAC6 | NORMAL | MAC5 | NORMAL |

FIG. 14

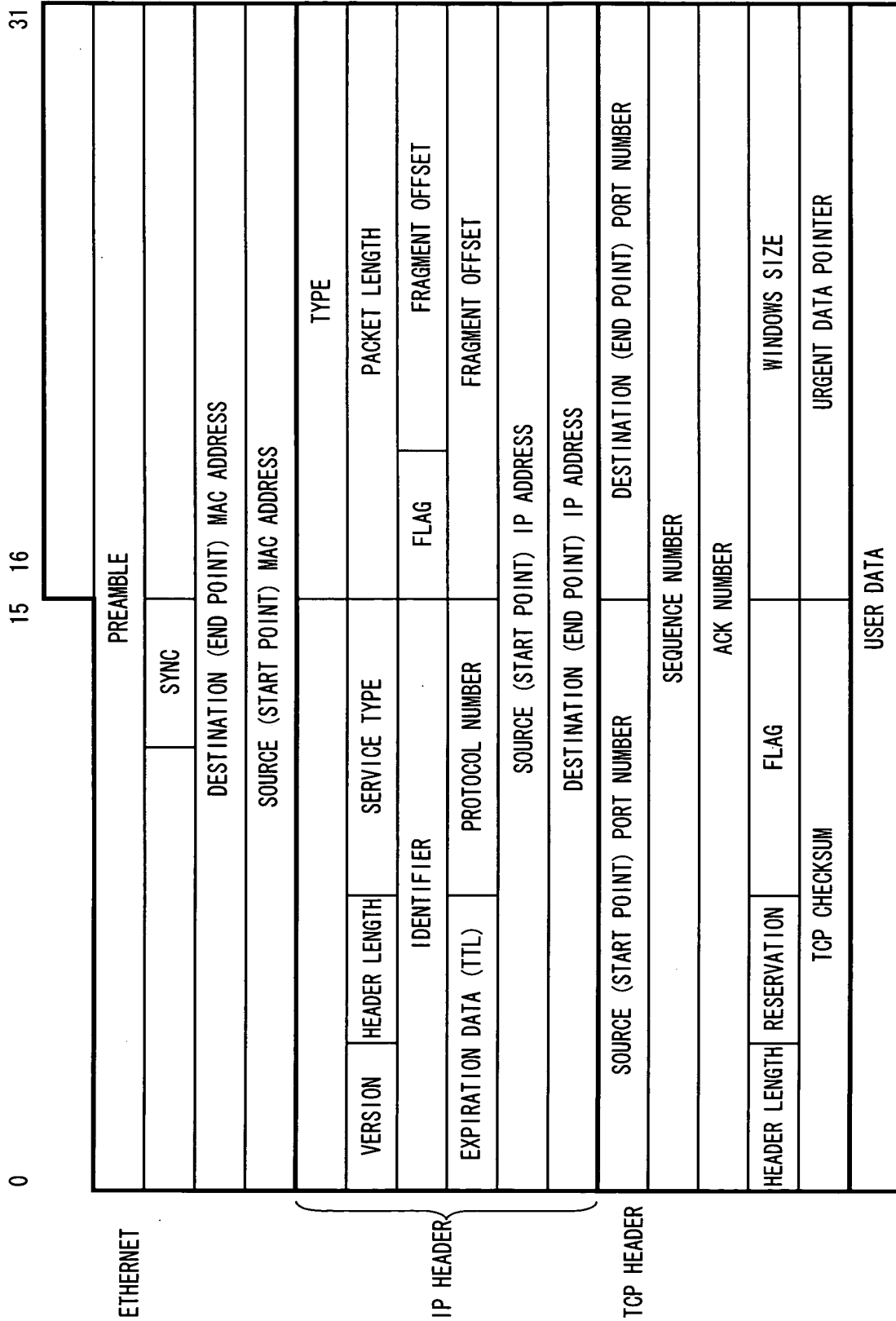
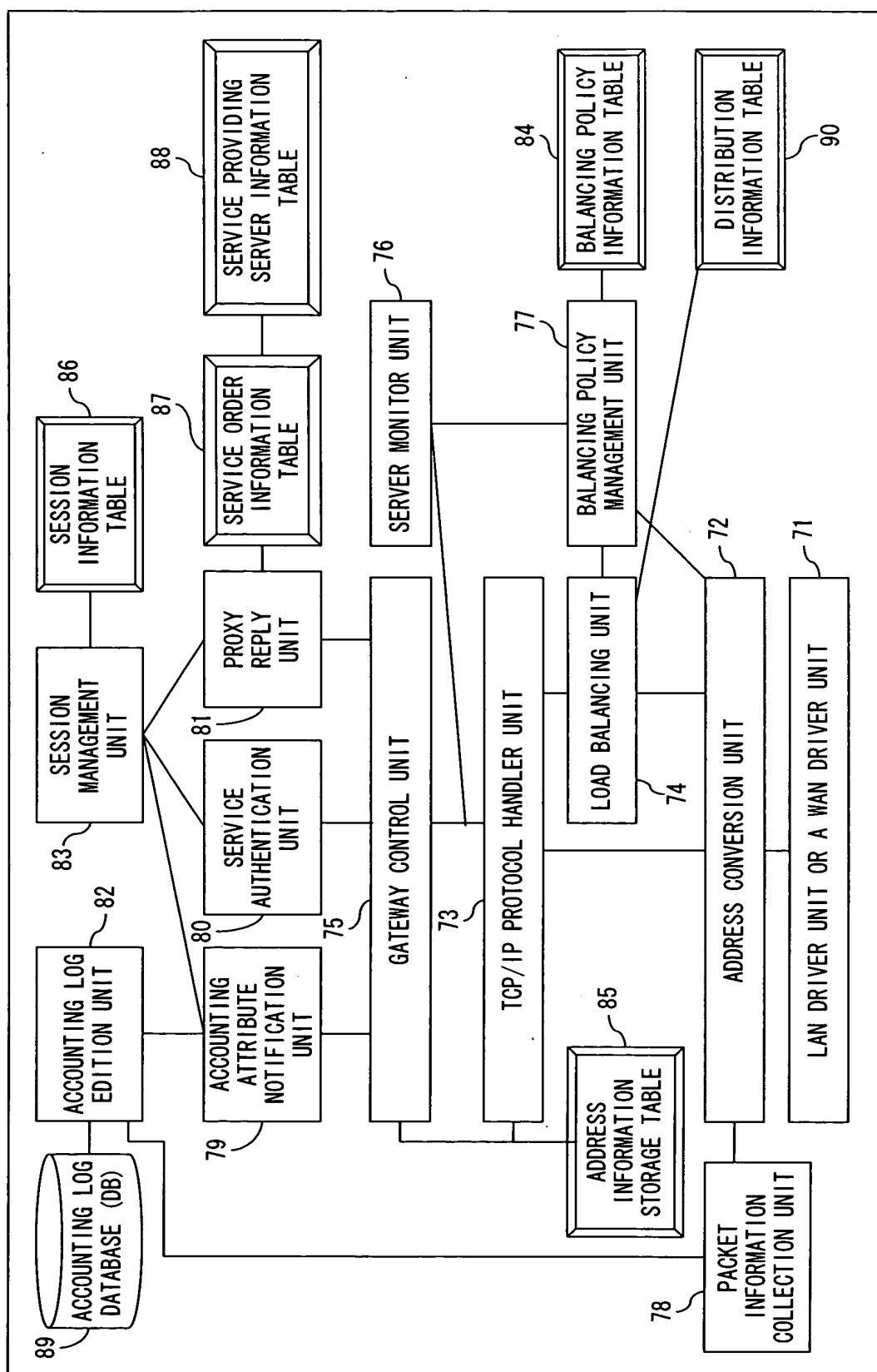


FIG. 15



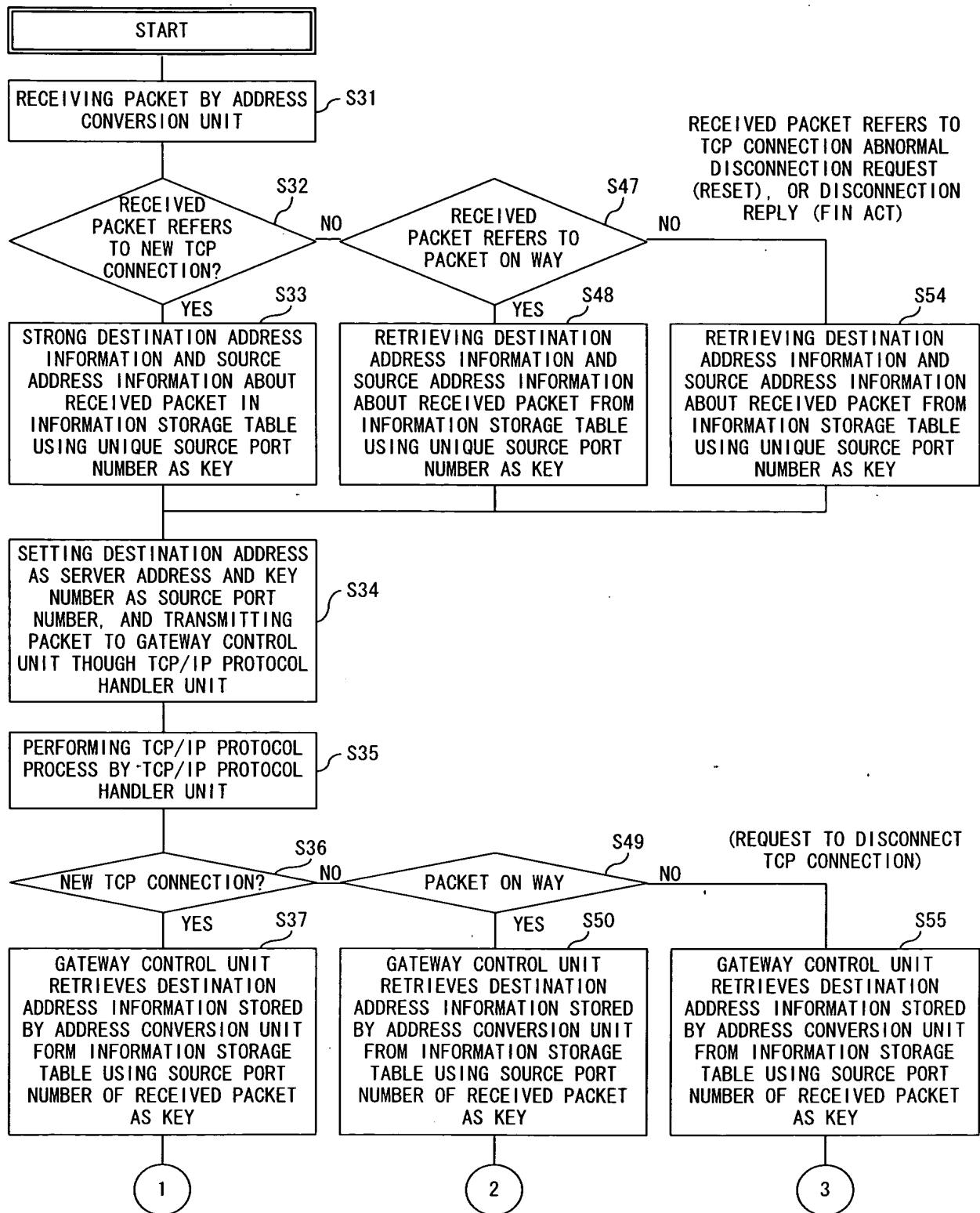


FIG. 17

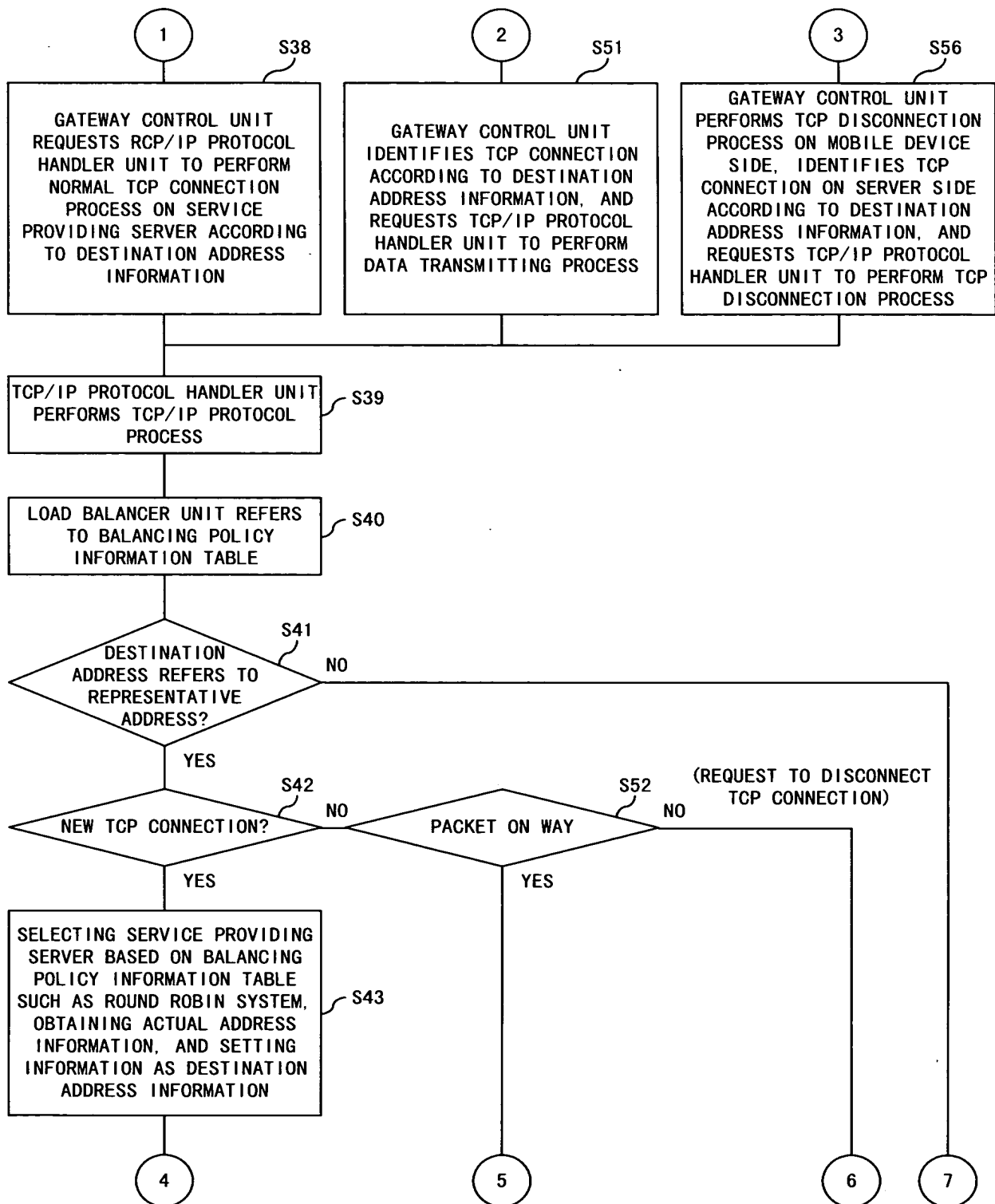


FIG. 18

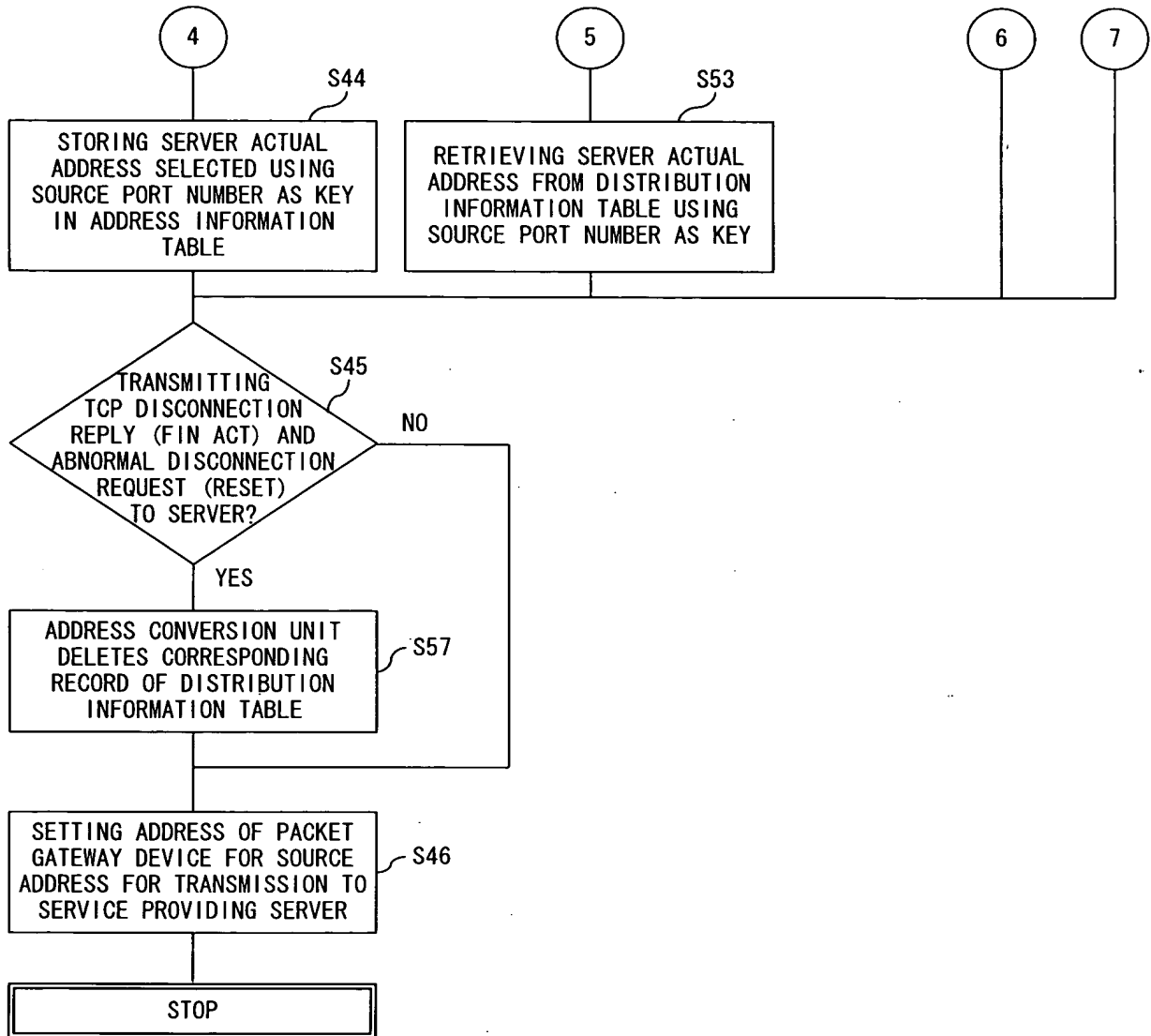


FIG. 19

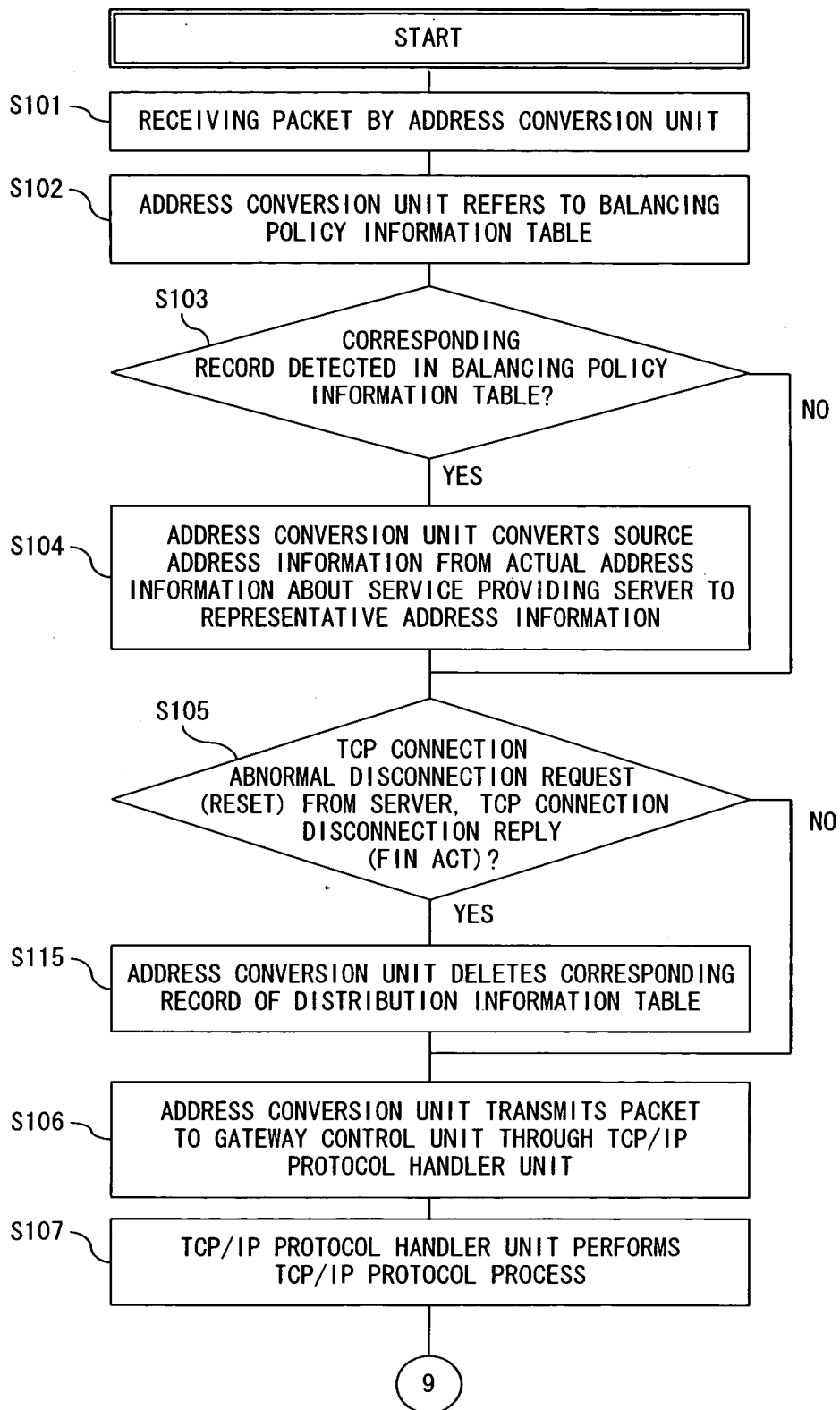


FIG. 20

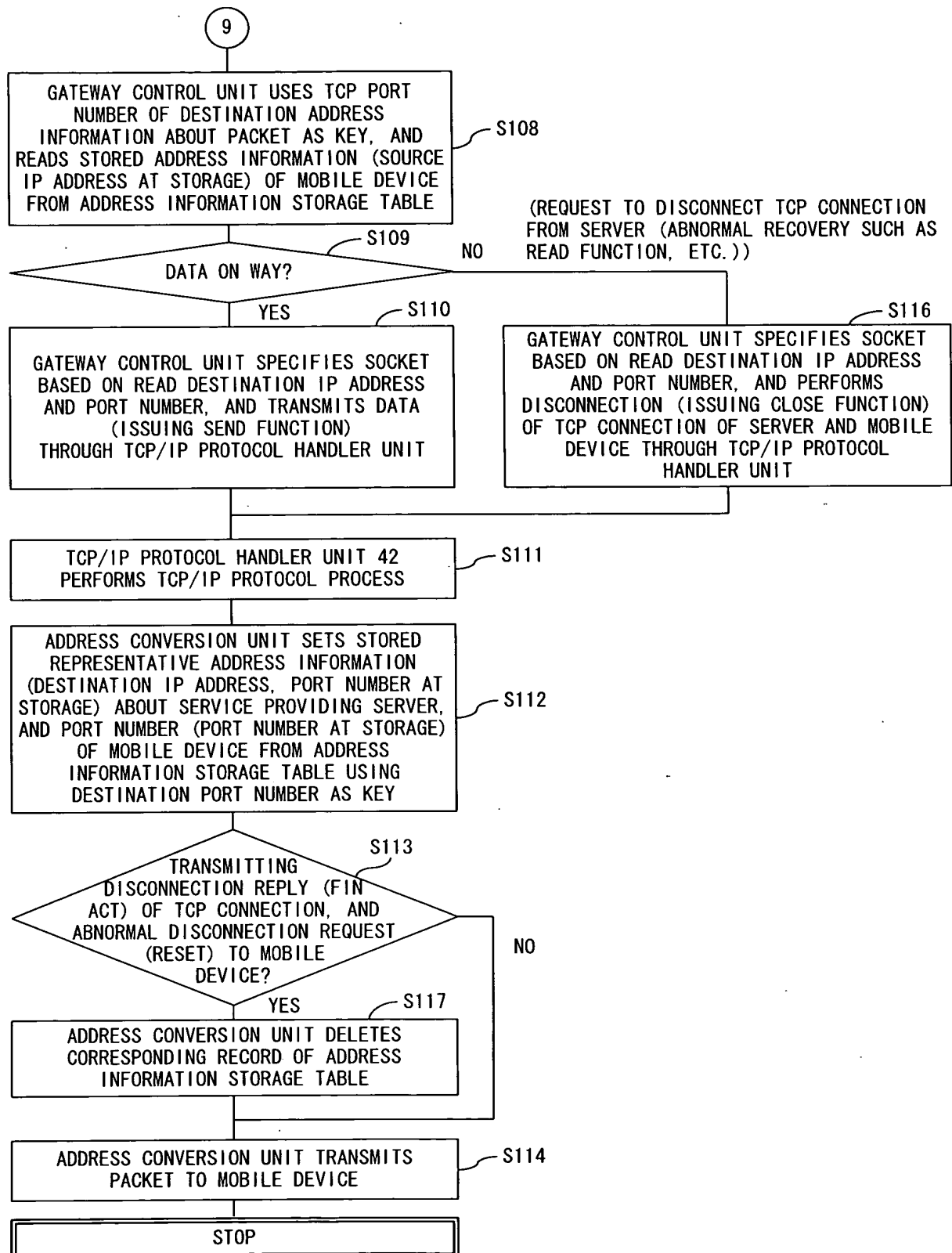


FIG. 21

| KEY INFORMATION | STORED ADDRESS INFORMATION | | | |
|-----------------|----------------------------|--------------------|------------------------|-------------------------|
| | SOURCE IP ADDRESS | SOURCE PORT NUMBER | DESTINATION IP ADDRESS | DESTINATION PORT NUMBER |
| | | | | |
| 1 | 10. 32. 0. 1 | 8081 | 10. 33. 0. 1 | 8080 |
| 2 | 10. 32. 0. 2 | 8081 | 10. 33. 0. 2 | 8080 |
| 3 | 10. 32. 0. 3 | 8081 | 10. 33. 0. 3 | 8080 |
| 4 | 10. 32. 0. 4 | 8081 | 10. 33. 0. 4 | 8080 |

FIG. 22

| SERVICE TYPE | SERVICE REPRESENTATIVE IP ADDRESS | NUMBER OF ACTUAL SERVERS | ACTUAL SERVER 1 IP ADDRESS | SERVER STATE | ACTUAL SERVER 2 IP ADDRESS | SERVER STATE |
|---------------------|-----------------------------------|--------------------------|----------------------------|--------------|----------------------------|--------------|
| WAP | 10. 33. 0. 1 | 2 | 10. 33. 1. 10 | NORMAL | 10. 33. 1. 11 | NORMAL |
| MAIL | 10. 33. 0. 2 | 2 | 10. 33. 1. 20 | NORMAL | 10. 33. 1. 21 | NORMAL |
| CHAT | 10. 33. 0. 3 | 2 | 10. 33. 1. 30 | NORMAL | 10. 33. 1. 31 | NORMAL |
| EXTERNAL CONNECTION | 10. 33. 0. 4 | 2 | 10. 33. 1. 40 | NORMAL | 10. 33. 1. 41 | NORMAL |

FIG. 23

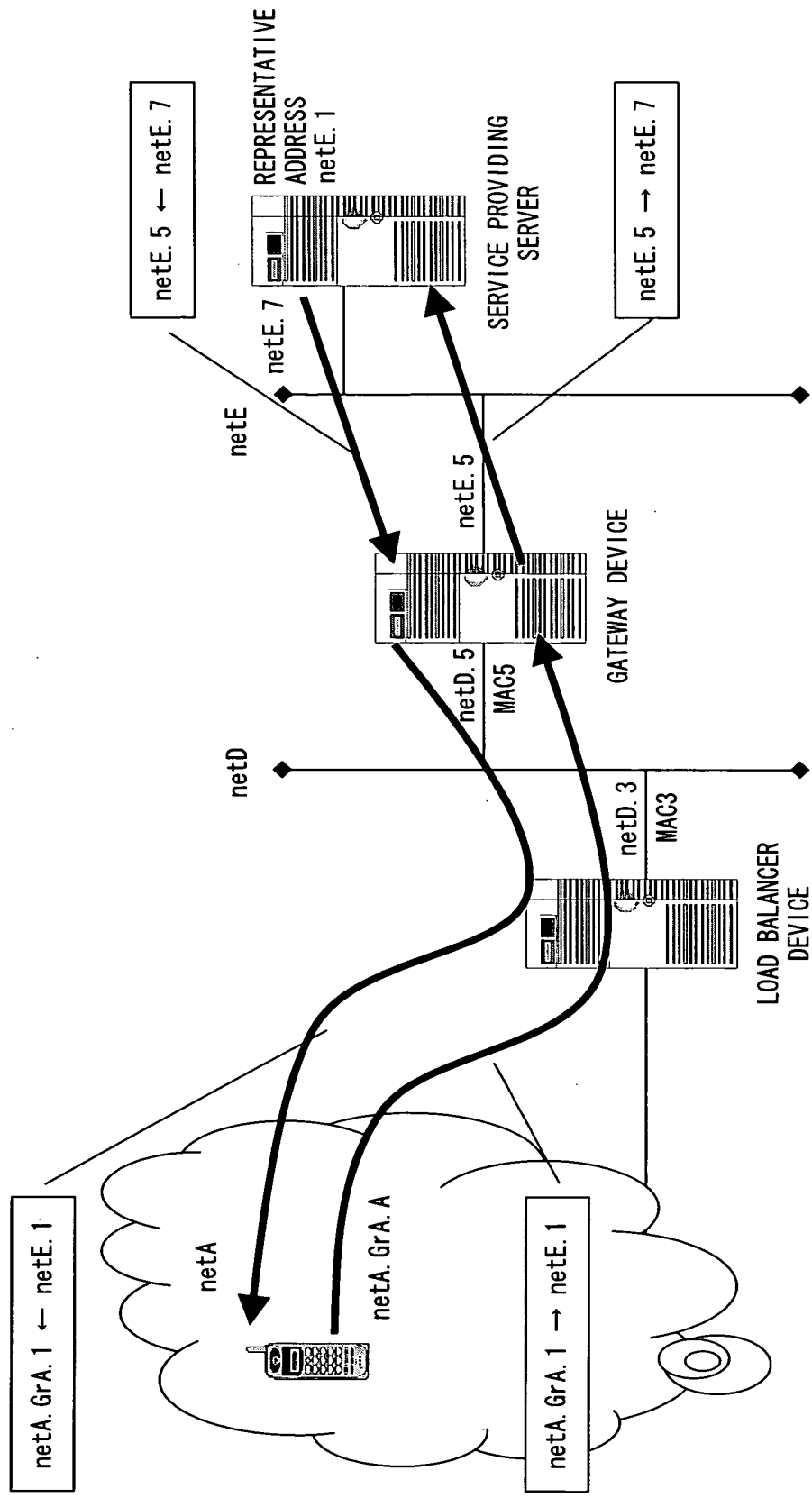


FIG. 24

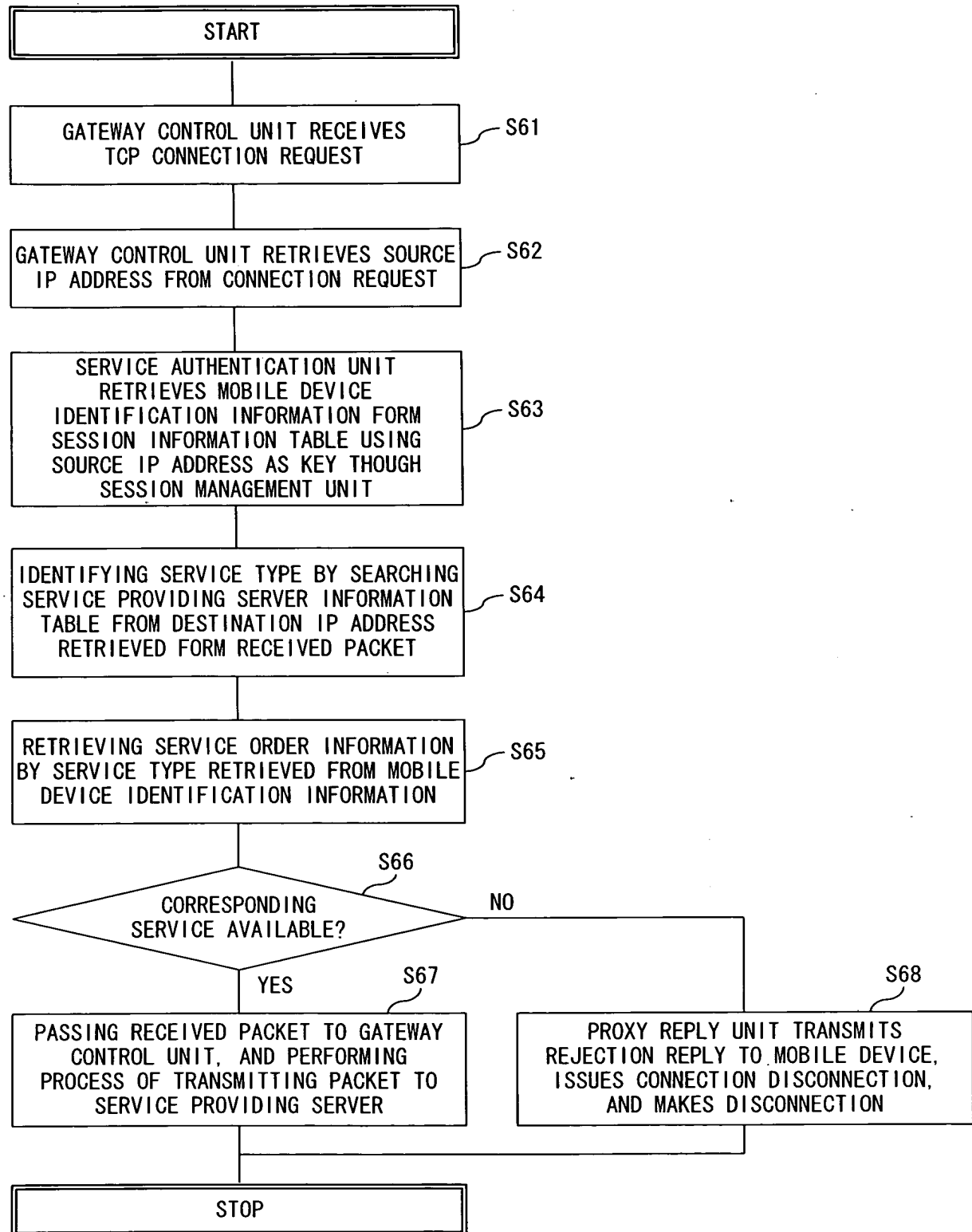


FIG. 25

| MOBILE DEVICE IDENTIFICATION INFORMATION | SERVICE ORDER INFORMATION | | | |
|--|---------------------------|------|------|---------------------|
| | WAP | MAIL | CHAT | EXTERNAL CONNECTION |
| F50200001 | OK | OK | OK | NG |
| F50200002 | OK | OK | OK | NG |
| F50200003 | OK | OK | OK | NG |
| F50200004 | OK | OK | OK | OK |

FIG. 26

| SERVICE PROVIDING SERVER INFORMATION | |
|--------------------------------------|--------------------------------------|
| SERVICE TYPE | SERVICE REPRESENTATIVE IP ADDRESS |
| WAP | 10. 33. 0. 1 |
| MAIL | 10. 33. 0. 2 |
| CHAT | 10. 33. 0. 3 |
| EXTERNAL CONNECTION | 10. 33. 0. 4 |

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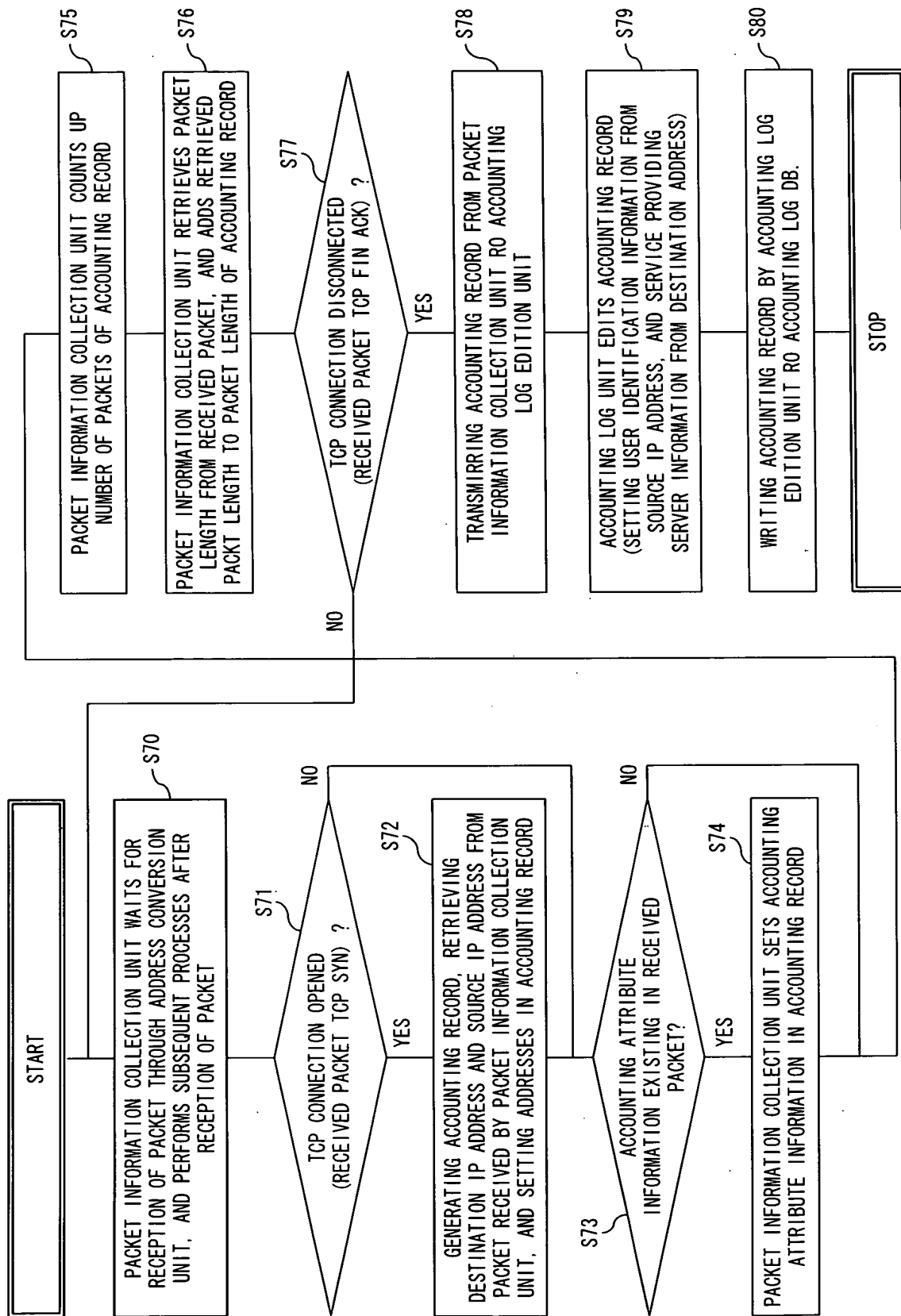


FIG. 28

| MOBILE DEVICE IDENTIFICATION INFORMATION | SERVICE PROVIDING SERVER INFORMATION | | ACCOUNTING ATTRIBUTE INFORMATION | | ACCOUNTING INFORMATION | |
|--|---|---|-------------------------------------|----------------------|------------------------|------------------------|
| | SERVICE TYPE | SERVICE REPRESENTATIVE IP ADDRESS | PROXY ACCOUNTING | CONNECTION SERVER | NUMBER OF PACKETS | TOTAL PACKET LENGTH |
| F50200001 | WAP | 10. 33. 0. 1 | - | - | 5 | 500 |
| F50200002 | MAIL | 10. 33. 0. 2 | - | - | 6 | 600 |
| F50200003 | CHAT | 10. 33. 0. 3 | - | - | 7 | 700 |
| F50200004 | EXTERNAL CONNECTION | 10. 33. 0. 4 | YES | WWW. Hoo. com | 3 | 300 |

FIG. 29

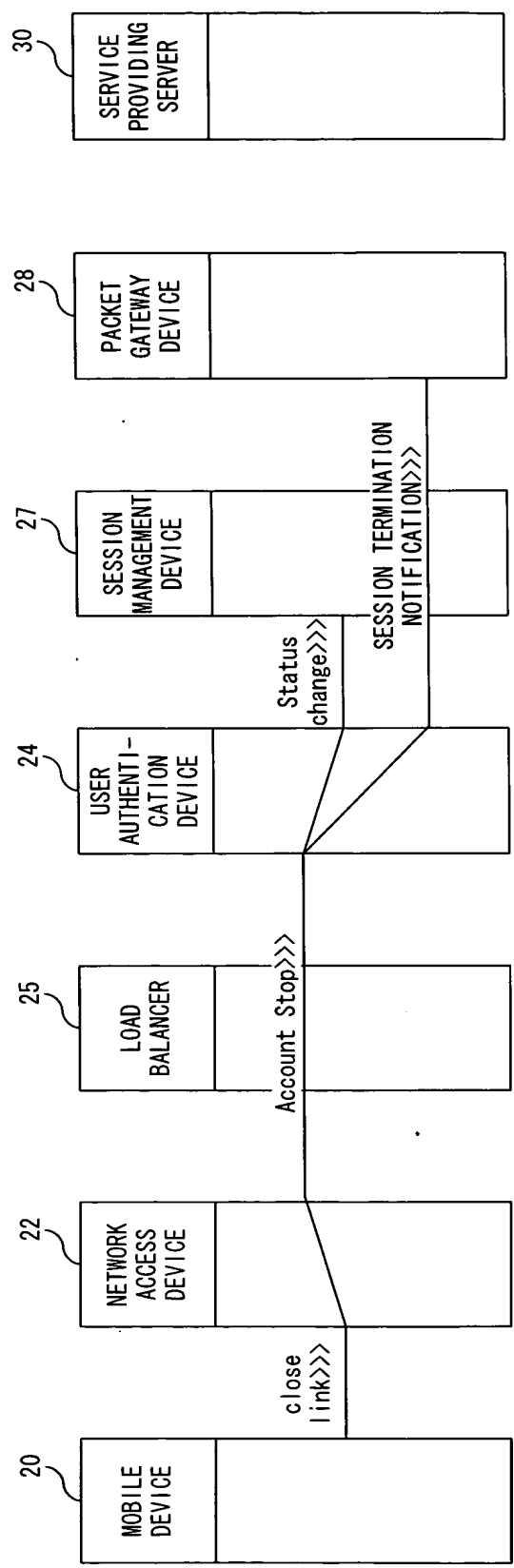


FIG. 30

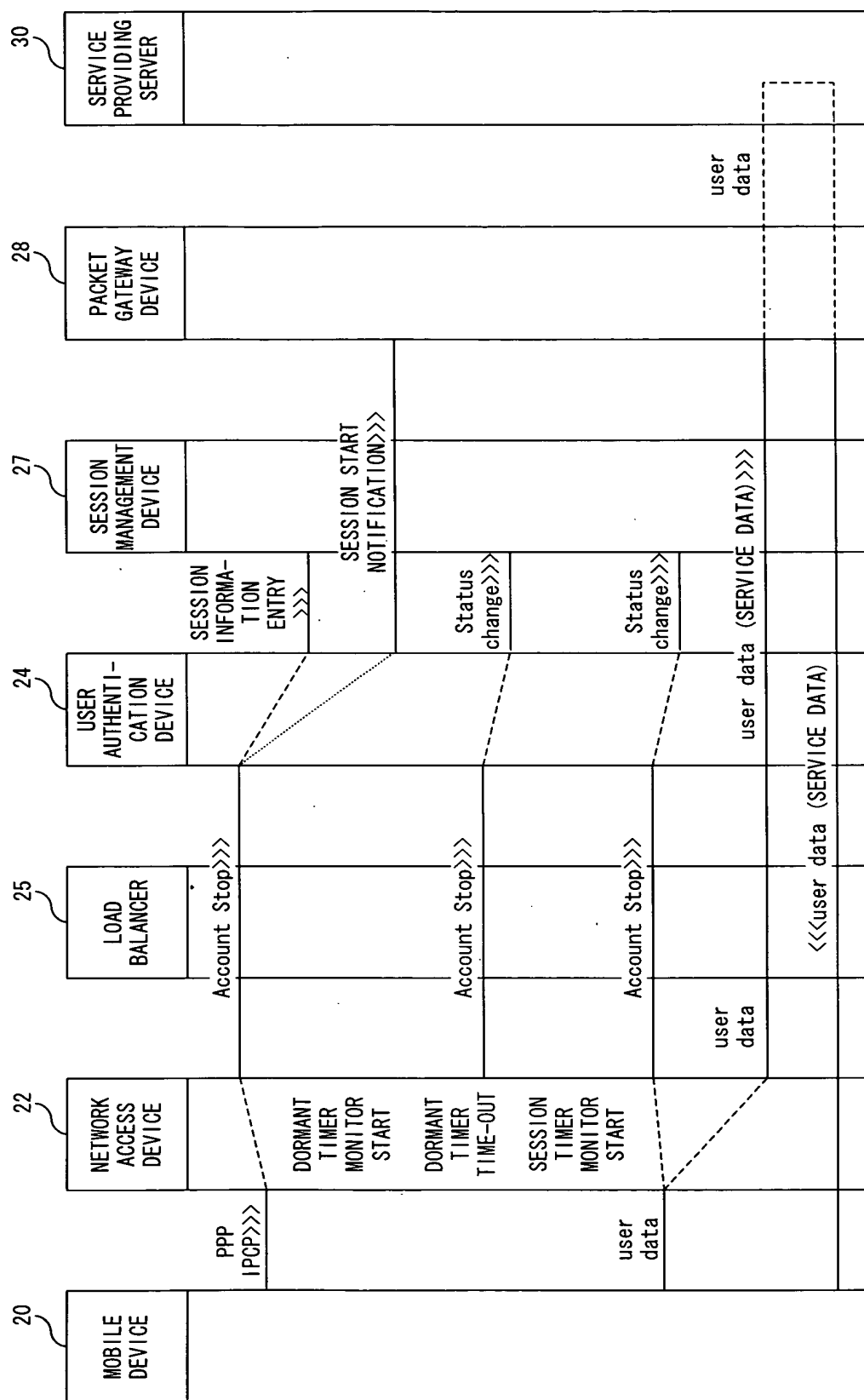


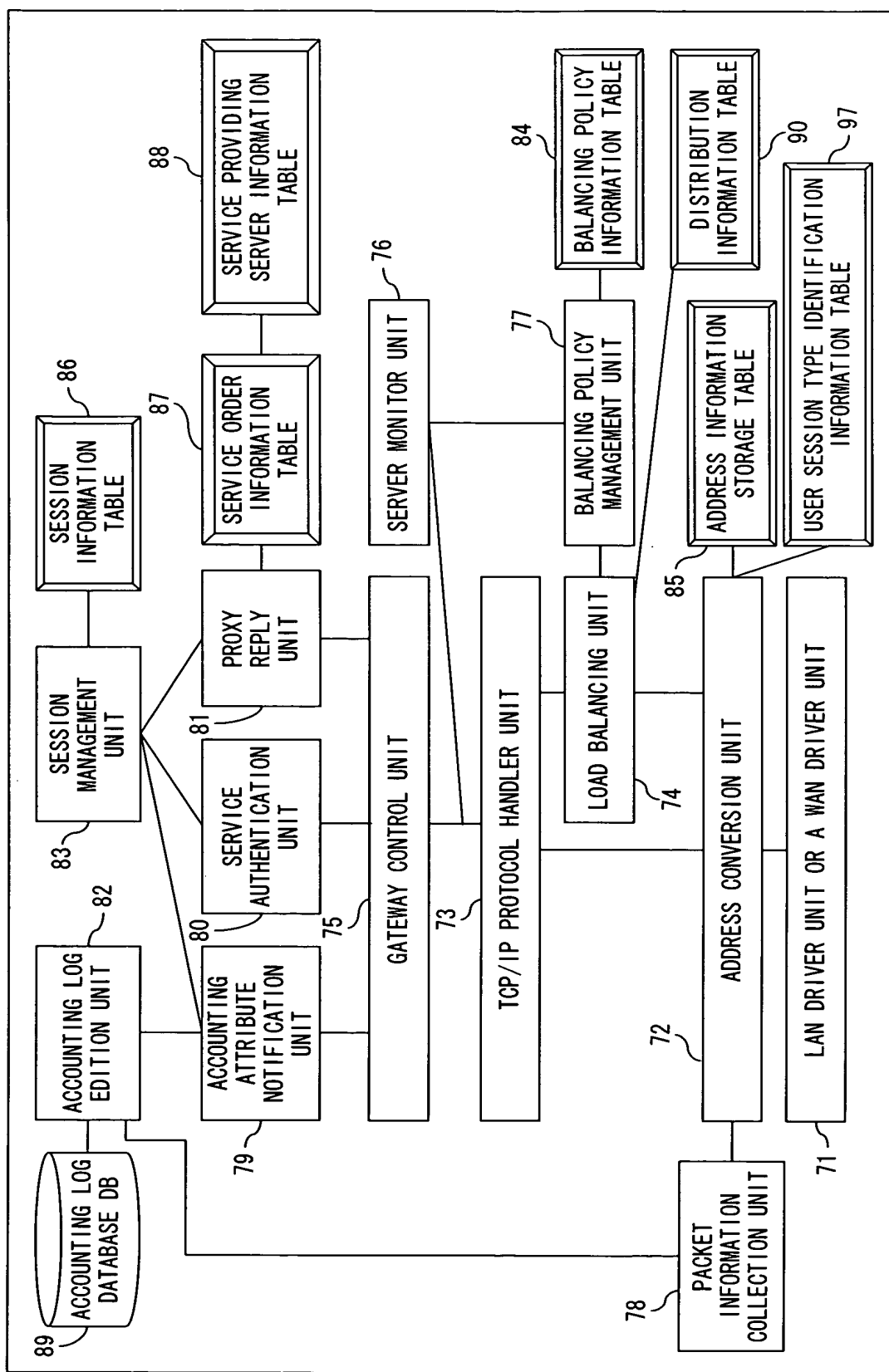
FIG. 31

| USER SESSION IDENTIFIER | PROTOCOL IDENTIFICATION | STORED ADDRESS INFORMATION | | | | | |
|----------------------------|----------------------------|----------------------------|-----------------------|----------------------|-----------------------|-----------------------------|--|
| | | SOURCE IP ADDRESS | SOURCE PORT NUMBER | SOURCE IP ADDRESS | SOURCE PORT NUMBER | ACTUAL SERVER IP ADDRESS | |
| | | | | | | | |
| 81 | TCP | 10. 32. 0. 1 | 81 | 10. 33. 0. 1 | 80 | 10. 33. 1. 10 | |
| 81 | TCP | 10. 32. 0. 1 | 81 | 10. 33. 0. 2 | 80 | 10. 33. 1. 20 | |
| 82 | TCP | 10. 32. 0. 2 | 82 | 10. 33. 0. 2 | 80 | 10. 33. 1. 20 | |
| 83 | TCP | 10. 32. 0. 3 | 83 | 10. 33. 0. 3 | 80 | 10. 33. 1. 30 | |
| 84 | TCP | 10. 32. 0. 4 | 84 | 10. 33. 0. 4 | 80 | 10. 33. 1. 40 | |

FIG. 32

| USER SESSION TYPE | WHEN RECORD OF ADDRESS INFORMATION STORAGE TABLE IS GENERATED | WHEN DESTINATION ADDRESS INFORMATION ABOUT RECORD OF ADDRESS INFORMATION STORAGE TABLE IS SET | WHEN DESTINATION ADDRESS INFORMATION ABOUT RECORD OF ADDRESS INFORMATION STORAGE TABLE IS CLEARED | WHEN RECORD OF ADDRESS INFORMATION STORAGE TABLE IS DELETED |
|-----------------------|--|--|---|--|
| LOG-IN UNIT | WHEN "SESSION START" IS RECEIVED FROM USER AUTHENTICATION DEVICE | (1) WHEN DESTINATION ADDRESS INFORMATION IS NOT SET WHEN UP PACKET IS RECEIVED FROM MOBILE DEVICE (2) DESTINATION ADDRESS INFORMATION IS DIFFERENT FROM RECEIVED PACKET (ADDING RECORD) | - | WHEN "SESSION TERMINATION" IS RECEIVED FROM USER AUTHENTICATION DEVICE |
| SERVICE UNIT | WHEN "SESSION START" IS RECEIVED FROM USER AUTHENTICATION DEVICE | (1) WHEN DESTINATION ADDRESS INFORMATION IS NOT SET WHEN UP PACKET IS RECEIVED FROM MOBILE DEVICE (2) DESTINATION ADDRESS INFORMATION IS DIFFERENT FROM RECEIVED PACKET | - | WHEN "SESSION TERMINATION" IS RECEIVED FROM USER AUTHENTICATION DEVICE |
| PACKET UNIT (UDP) | WHEN "SESSION START" IS RECEIVED FROM USER AUTHENTICATION DEVICE | WHEN UP PACKET IS RECEIVED FROM MOBILE DEVICE | WHEN DOWN PACKET IS TRANSMITTED TO MOBILE DEVICE | WHEN "SESSION TERMINATION" IS RECEIVED FROM USER AUTHENTICATION DEVICE |
| CONNECTION UNIT (TCP) | WHEN "SESSION START" IS RECEIVED FROM USER AUTHENTICATION DEVICE | WHEN CONNECTION ESTABLISHMENT REQUEST (TCP SYN PACKET) IS RECEIVED FROM MOBILE DEVICE | WHEN DISCONNECTION REPLY (FIN ACT PACKET) IS TRANSMITTED TO MOBILE DEVICE | WHEN "SESSION TERMINATION" IS RECEIVED FROM USER AUTHENTICATION DEVICE |

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FIG. 34

| PROTOCOL TYPE | SERVICE REPRESENTATIVE IP ADDRESS | DESTINATION PORT NUMBER | USER SESSION TYPE |
|---------------|---|----------------------------|-------------------|
| TCP | 10. 33. 0. 1 | 80 | SERVICE UNIT |
| TCP | 10. 33. 0. 2 | 80 | PACKET UNIT |
| TCP | 10. 33. 0. 3 | 80 | CONNECTION UNIT |
| TCP | 10. 33. 0. 4 | 80 | LOG-IN UNIT |

F I G. 3 5

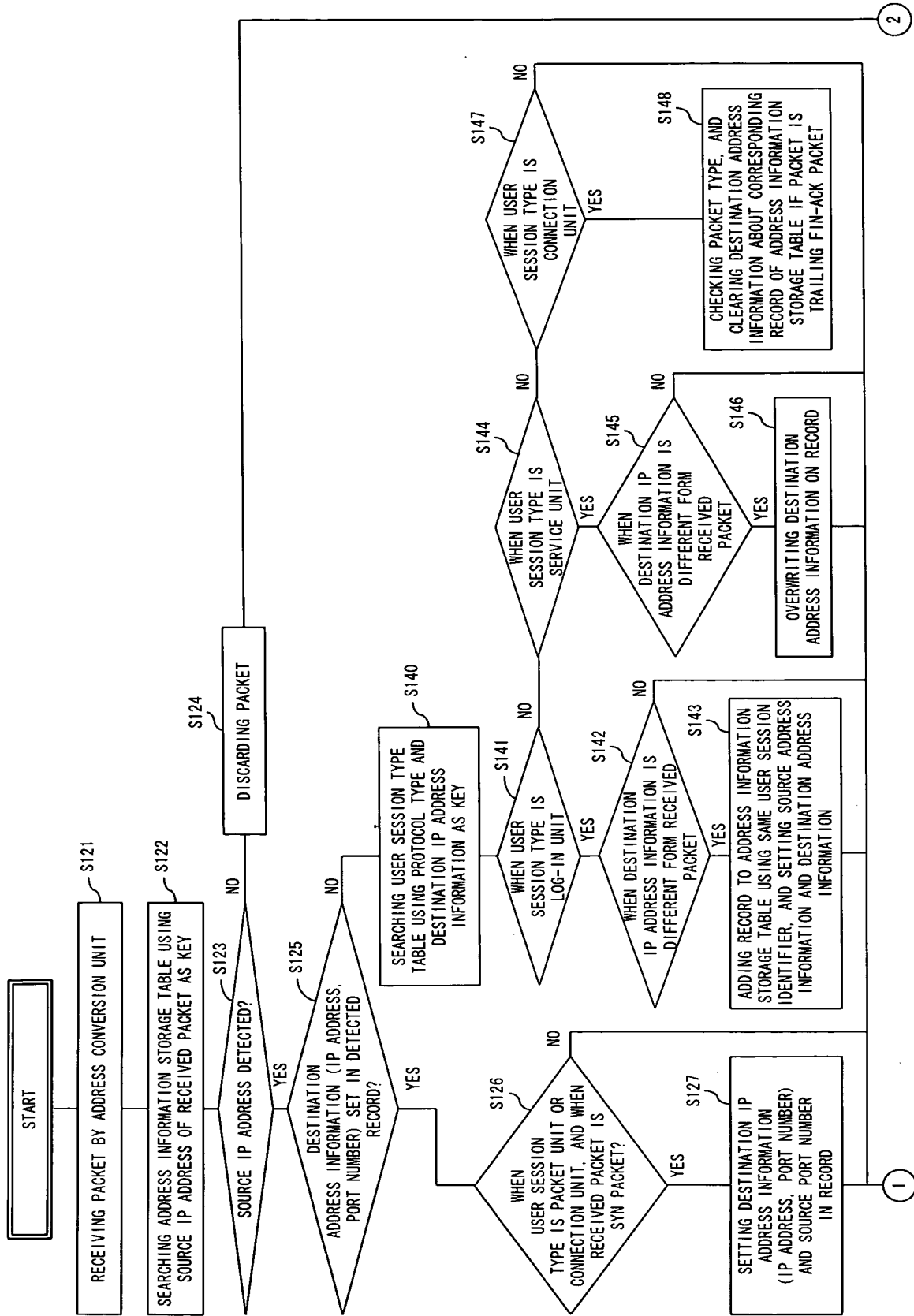


FIG. 36

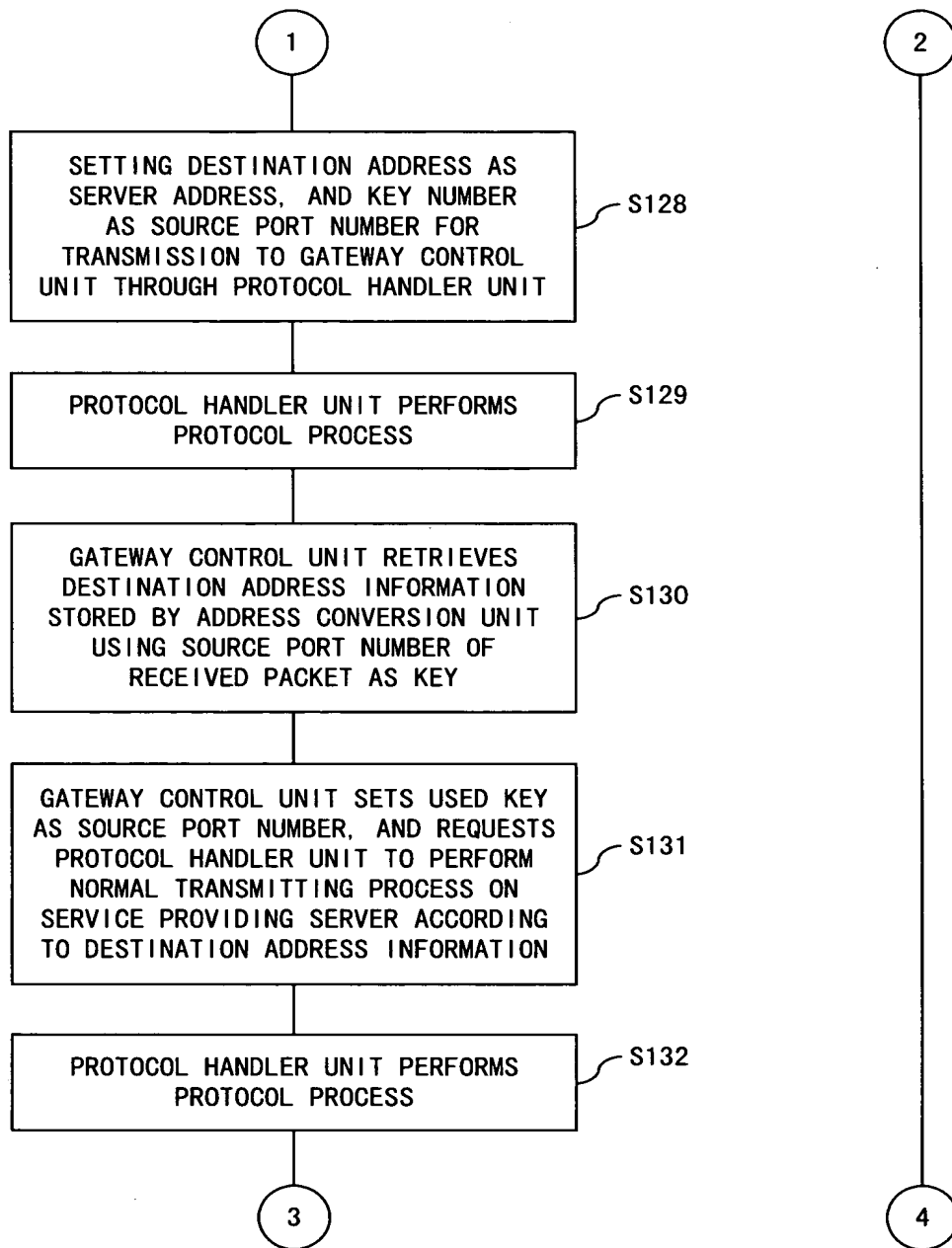


FIG. 37

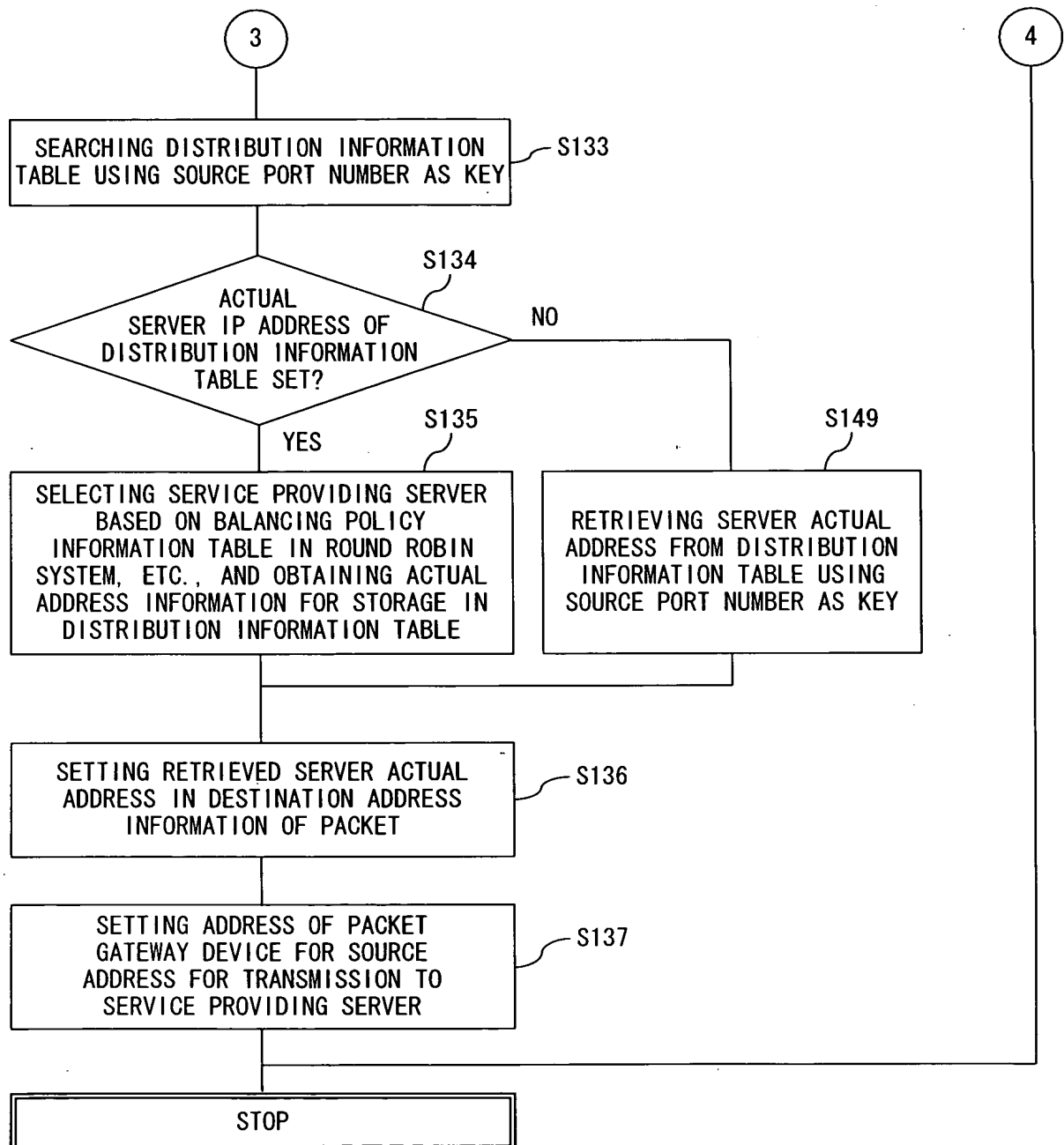


FIG. 38

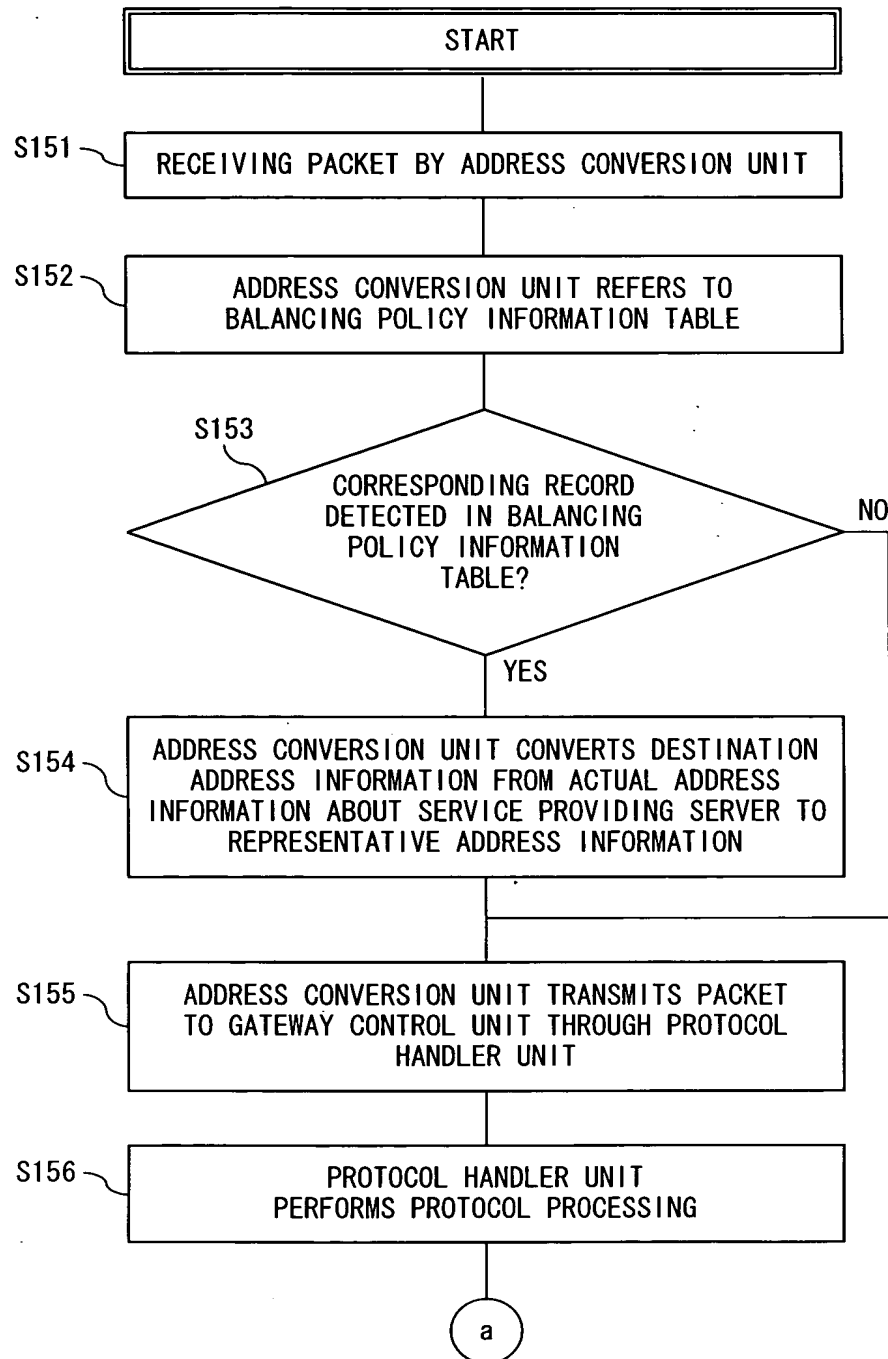


FIG. 39

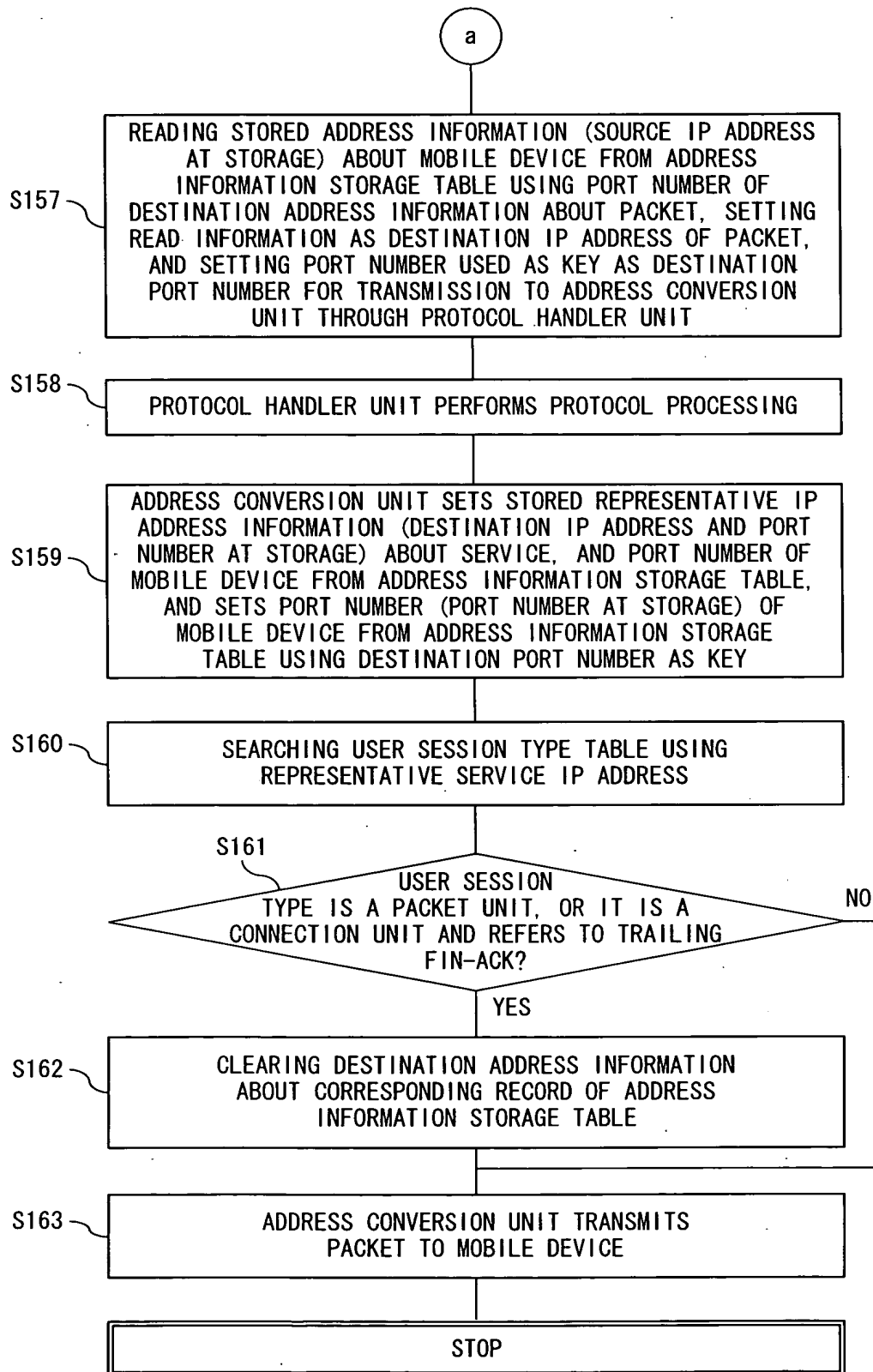


FIG. 40

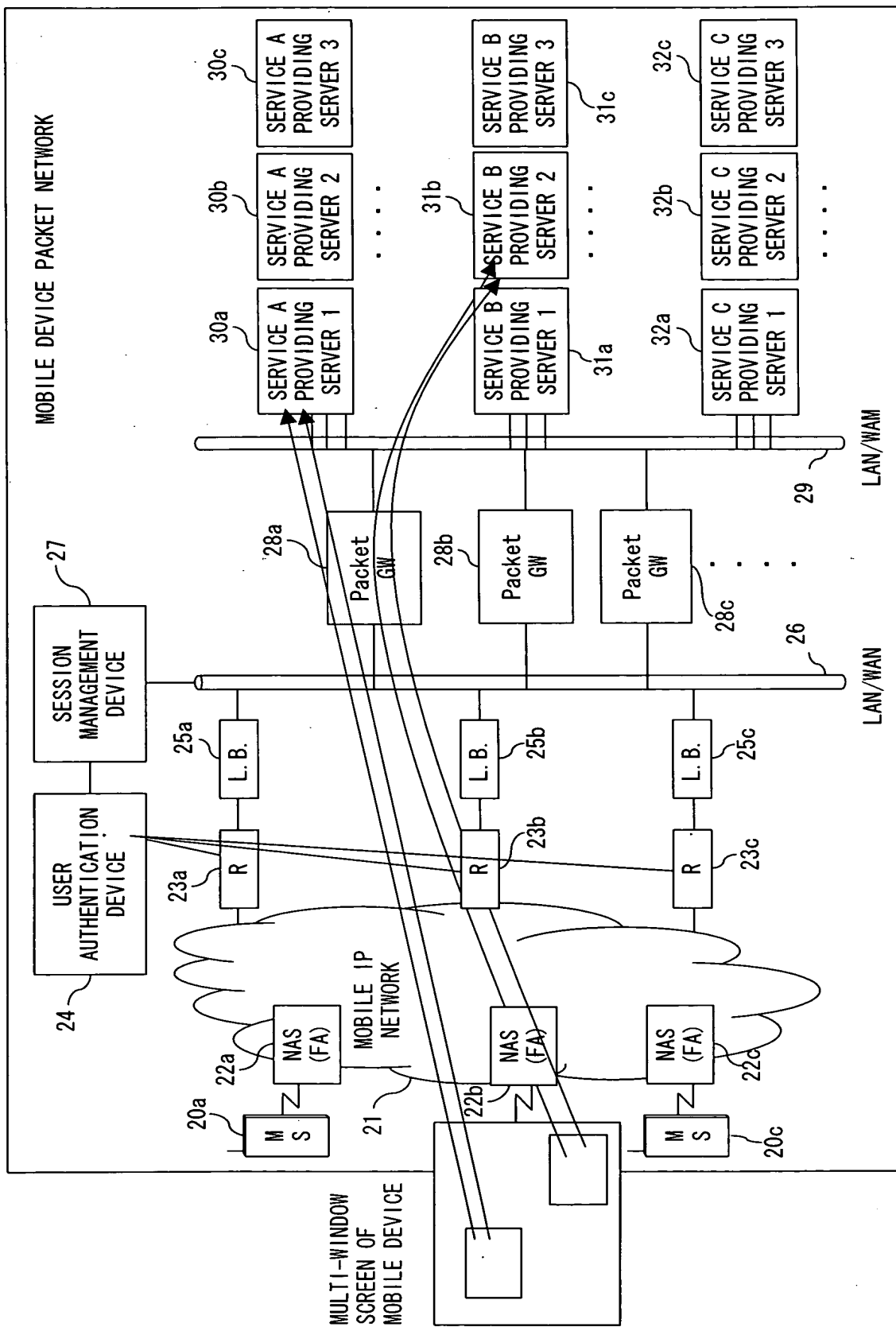


FIG. 41

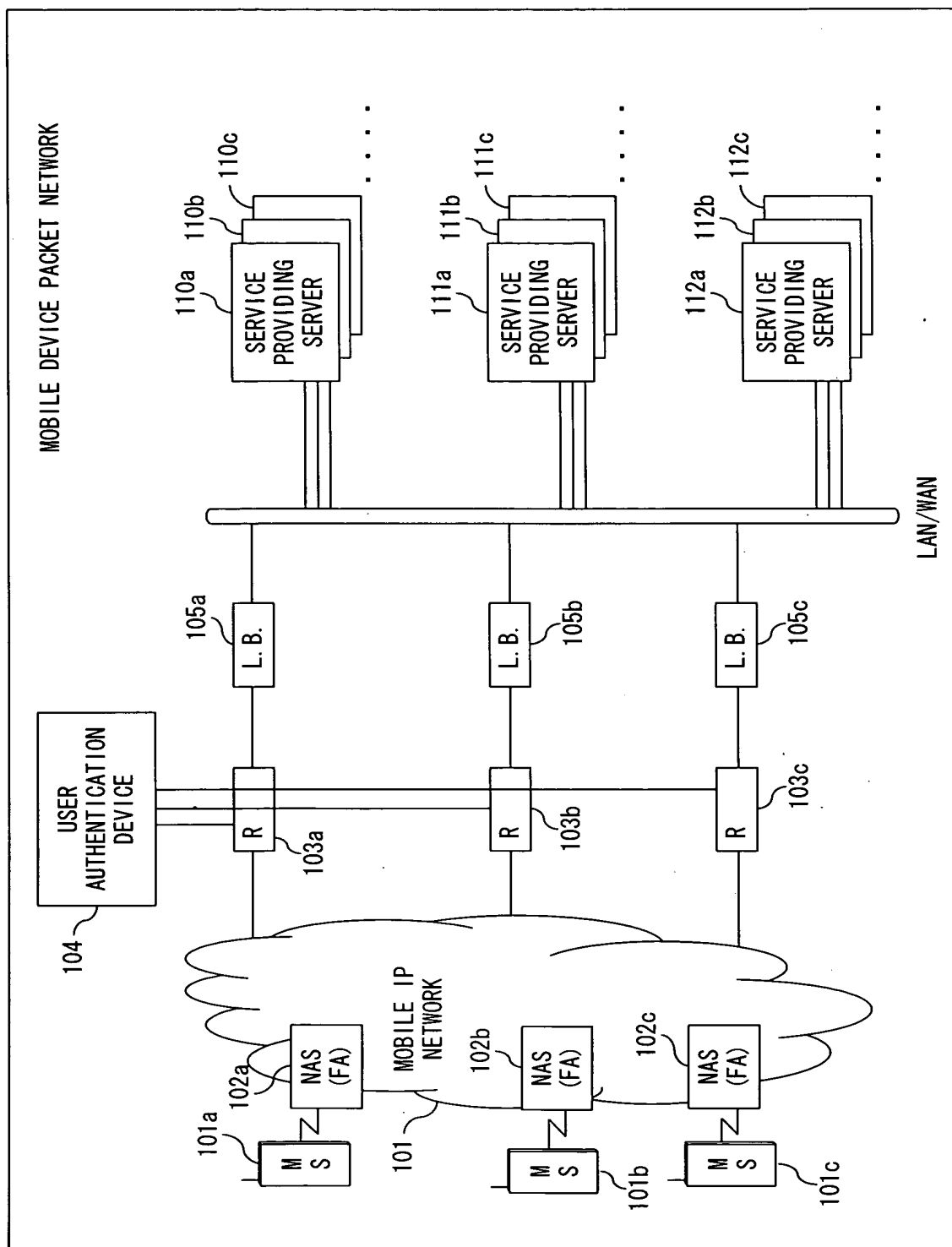


FIG. 42

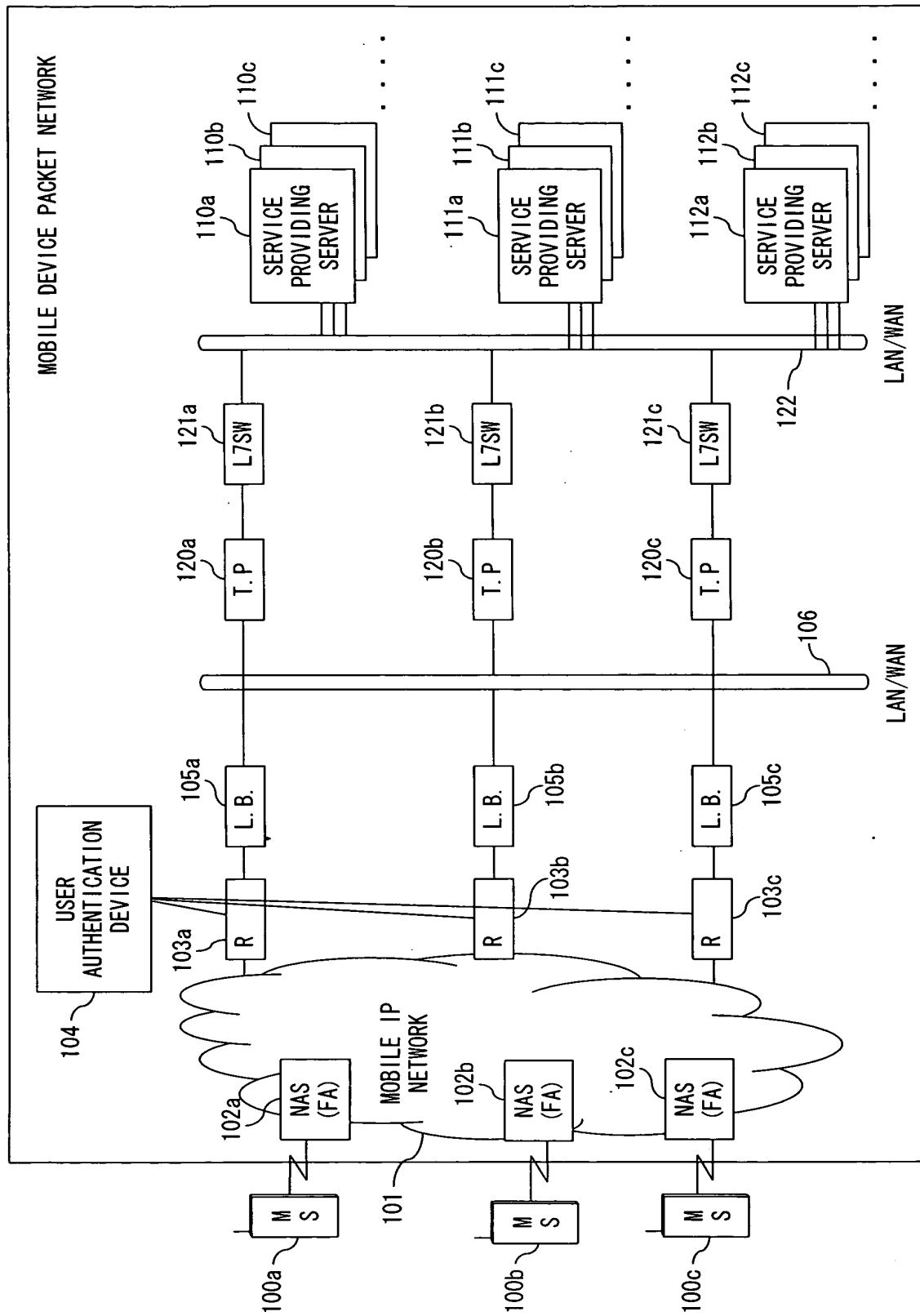


FIG. 43

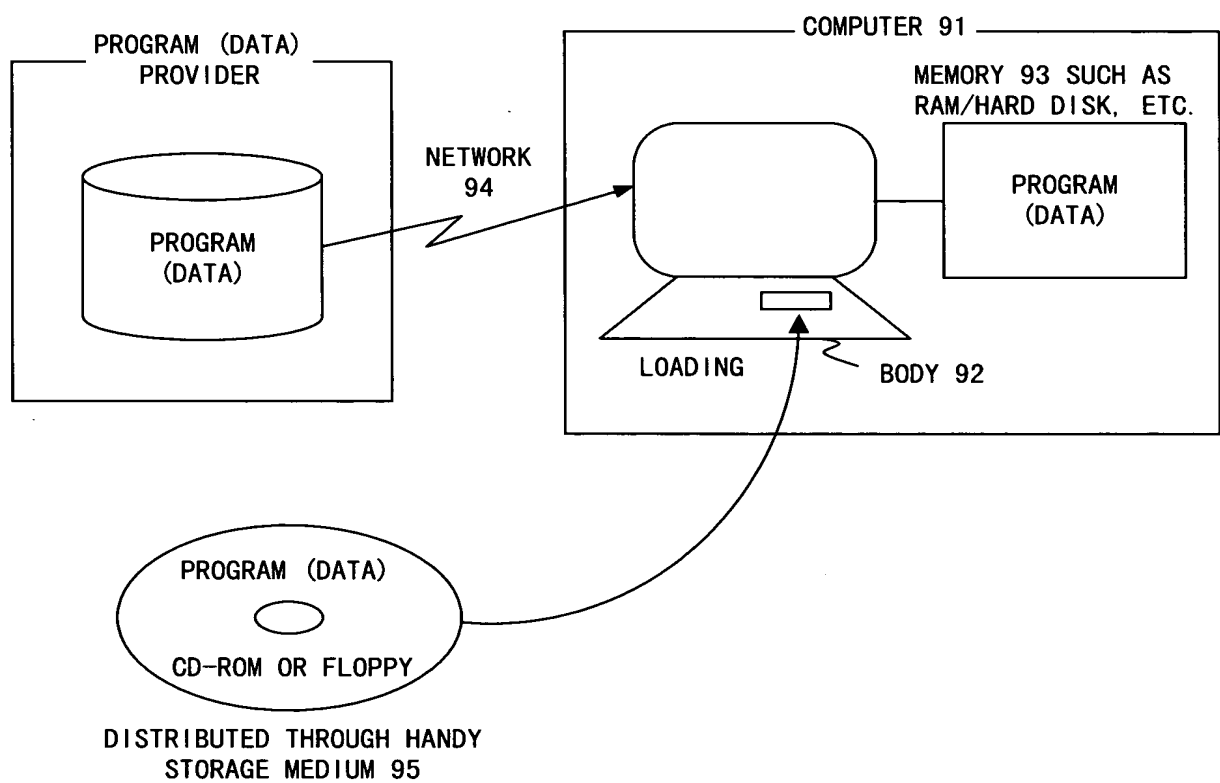


FIG. 44